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ORIGINAL COMMUNICATIONS.

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PRIMARY EPITHELIOMA OF THE ANTRUM OF HIGHMORE.*

BY H. HOLBROOK CURTIS, M.D., NEW YORK, N. Y.

A case of so rare occurrence presented itself in my private practice on May last that I present it to the section as of especial interest. A lady of fifty years had complained for two weeks of neuralgic pains of a severe type, involving the distribution of the fifth and seventh nerves on the left side of the face. There was found pronounced pain on pressure over the antrum, but no evidence of pus in the ostium maxillare. Transillumination showed a marked umbra of the orbit and an opaque shadow in the vicinity of the antrum of that side.

There being no teeth in the upper jaw behind the first molar, I trephined through that socket and obtained a free bloody discharge intermixed with brown caseous material. Syringing caused the exit of but little fluid from the nose. The nasal cavity at that time was apparently healthy and the turbinates appeared normal. The pain was relieved for a few days by constant syringing, but the following week it increased in severity, and it became impossible to introduce the canula of the syringe. Within ten days the nose became occluded on the left side and the region of the jaw became peculiarly sensitive, swollen and discolored. On the fifteenth day after the exploratory operation the cheek became swollen and edematous, and the region of the third molar alveolus became soft and broke down. Thus far the orbit had not become invaded. I removed the patient

* Presented at the last meeting of the Eastern Section of the American Laryngological, Rhinological and Otological Society, Philadelphia, May, 1900.

to a private hospital, and placing her under ether made a large opening involving the three posterior alveoli and the canine fossa. In the presence of a free hemorrhage I evacuated with curettes and the sharp spoon the entire cavity of the antrum and explored thoroughly with my finger to ascertain the condition of the walls. The floor of the orbit was like tissue paper and the entire bony walls of the antrum seemed to be spongy and on the point of breaking down. I promptly packed with iodoform gauze and submitted the scrapings and por-

Second Week.

tions of the soft growth to Dr. Denton for microscopic examination. The pathological report stated that the mass was composed of a network of new vessels holding within the meshes closely packed epithelial cells. There were evidences enough in the specimens taken to show that we had to deal with a most malignant type of epithelial cancer, though the slides were not as satisfactory as could be wished on account of having only detritus and broken-down portions of the growth to examine microscopically. The condition of the patient did not warrant an immediate resection of the superior maxilla even had it been advised by the consulting surgeons. The cavity was syringed with peroxide of hydrogen to counteract the

characteristic odor, which was particularly offensive, and packed daily with iodoform gauze.

From the date of removal of the growth the invasion of the surrounding structures was rapid in the extreme. The mouth was first invaded to the median line of the arch, the orbit rapidly following in order of attack, the eye closing and the lids becoming edematous. The tumor caused the face on that side to become as large as an apple with the skin drawn tightly over the invading tumor. The patient at the end of the second week complained of difficulty in swallowing and the glands of the neck were becoming involved. The nose had lost its outline by the fourth week, the tumor pushing the nasal bones to the right and invading the cavities of both sides. The pain at this time had become so severe that sometimes five grains of morphia sulph. were administered during a single night. Death fortunately relieved the terrible sufferings at the end of the sixth week after the evulsion of the contents of the maxillary antrum.

The points of interest seem to be:

First—The primary invasion of the antrum by the cancer.

Second—That the growth proved to be an epithelioma.

Third—That after operative procedure the growth extended with such startling rapidity.

The statistics of cancer of the nasal cavities are given by Dr. W. Kunmel in "Heymann's Handbuch der Laryng. und Rhinologie," as follows: "M. Schmidt found 9 cases in 42,635, or 0.021 per cent, while in the Universitäts Poliklinik, Berlin, but 2 occurred in 27,600 cases."

Carcinoma is of rarer occurrence than sarcoma; in the above statistics it occurred in 0.026 per cent to 0.036 per cent of all cases.

The point of origin was given as most frequently the anterior portion of septum. Then follows the origin from the lower turbinates. He says, however, that many of the latter actually arise from the antrum, whose walls are perhaps more frequently than the nose the seat of cancer.

Coakley, in his book published in 1899, does not mention carcinoma or epithelioma of the antrum. He refers only to sarcoma and osteo-sarcoma as the two most frequent forms of malignant growths invading this cavity.

Lennox Browne, fifth edition, 1899, says: "Primary nasal cancer is rare, and is mainly epithelial." He goes on to state that his previous conviction, that benign tumors of nasal origin may become malignant, has been fortified by his own and the experience of others.

Kyle, "Diseases of the Nose and Throat," 1899, says: "Sarcoma and carcinoma of the antrum may be either primary or secondary."

No mention of carcinoma of the antrum is made in Bosworth's work.

Tissier, "Tumeurs de Nez et des Sinus," *Ann. de Mal. de l' Oreille et du Larynx*, J. xxiv, 1898, goes into a description of the tumors of the antrum. He classifies them as (a) mucous cysts, (b) dental cysts, (c) benign tumors, (d) malignant tumors.

Heyman found on examining 250 skulls that there existed in 14 a single mucous polyp in the antrum. They are almost never recognized during life.

In reviewing the literature of the subject it is interesting to note that several observers have reported the transformation of mucous polypi to carcinoma, which is in accord with the theory so warmly advanced oy Browne a few years ago.

Duret, *Journal d. Soc. Med. de Lille*, 1887, says that six months ago he excised some polyps from sup. turbinate region in a man of seventy-five years. There was very profuse hemorrhage. Two months afterwards a phlegmonous inflammation appeared about inferior border of the orbit. Pus was found by incision. A month later the border of orbit became swollen and projected to the size of a lady apple. The anterior part of the sup. maxillary bone was removed and it was found that the tumor, which proved to be an epithelioma, had invaded the antrum. It had broken through the orbital plate and was attached to the anterior part of the cribriform. The remarkable fact observed was that the walls of the antrum had not become deformed.

J. B. Hamilton, *Journal Am. Med. Assn.*, 1886, reports a case of carcinoma of antrum complicated with nasal polypi.

E. Fink, *Arch. f. Laryngol.*, 1894, p. 198, says: Billroth in his work, "Ueber den Bau der Schleimpolypen," denied the possibility of the transformation of a benign to a malignant growth. The theory is, however, upheld by Michel, "Die Krankheiten der Nase," 1876; also by Sajous, Massei, Delstanche et Marique, *Ann. des Mal. de l' Oreille*, 1884, 3.

Schmiegelow, *Rev. de Laryng.*, 1885, cites two cases of transformation of polypi into carcinoma. * * *

Bayer, *Deut. Med. Woch.*, 1887, exhibited a mucous polyp which had been removed from the roof of nose, the lower half of which had become a villous cancer. These cases must be rare, for of 11,131 carcinoma examined but 4 were from the nose or sinuses.

Fink reports a case, aged thirty-three, male, who for twenty years

had submitted to repeated operations for removal of polypi in left nostril. Esmarch, in Kiel, had first diagnosed polypi of antrum and advised a free operation. This was finally done and a medullary carcinoma was found which later invaded the cervical vertibræ.

Morgani, in 1779, recognized the presence of polypi in the antrum. Zuckerkandl says they are found in 2 per cent of all cases, while Heymann puts the ratio even to 6 per cent.

The only case I find recorded of an epithelioma primarily arising in the antrum is that of A. Caselli of Genoa, (*La Reforma Medica*, 1886, p. 113), who describes a case very similar to that which has been made the subject of this paper.

Since reporting the above case at the May meeting of the Society in Philadelphia, I hear of a case of primary epithelioma of the antrum that has been reported by Dr. Wendell Phillips of New York.

118 Madison Avenue.

REPORT OF A CASE OF SPONTANEOUS CURE OF A SEVERE MASTOIDITIS.

BY H. S. McGAVREN, M.D., SACRAMENTO, CAL.

A girl, ten years of age, was brought to my office by her parents, for treatment of an acute suppuration of the middle ear, right side.

The ear differed in no particular from the ordinary case of this trouble, but, on examining the left ear, I found a marked depression of the mastoid eminence, very similar in appearance to that following an ordinary operation for mastoiditis, except that it was cup shaped, nearly round, and appeared to be very deep. There was no tenderness.

The history elicited was clearly the history of a severe case of mastoiditis, which ran a course of several weeks, and which closed after the exfoliation of a bony mass, which the child's mother said was about the size of her thumb nail. No physician was consulted during the course of the trouble, and the only treatment was simple cleansing with some household remedy.

The trouble occurred some two years before my examination, and the cure appears to be complete. The hearing, as I remember the case, was very good; but expecting to see more of the child, my notes were not as fully and carefully taken as they might have been.

I have lost all track of the case.

CARCINOMA OF THE LARYNX—LARYNGECTOMY.*

BY JOSEPH S. GIBB, M.D., PHILADELPHIA, PA.

Laryngologist to the Episcopal Hospital, etc., Philadelphia.

In discussing the subject of carcinoma of the larynx, Mr. Lennox Browne very properly remarks that each case should be reported. While it is pleasanter to report a case and present the patient than to show specimens, it is in keeping with true scientific progress to record our failures as well as successes.

In the case which it is my privilege to report at this meeting, though we have not been successful, it is hoped the details may not be uninteresting, and if mistakes have been made we may profit by them.

The subject of this sketch was a strong, vigorous Welshman, of good family history, denying syphilis. He was an engineer, and until a short time before he applied for treatment was able to pursue his trade. The first he noticed of his throat trouble was about two and a half years ago. The symptoms were slight hoarseness, dyspnea and tire upon exertion. He attributed his condition to cold contracted during his work and paid little heed to it. These symptoms continued with very little increase and with no medical advice until August, 1899, when, during an unusually severe coughing spell, he expelled a hard, grisly substance (these are the patient's words) from his throat, which was followed by quite free spitting of blood. For a period of two weeks succeeding this attack he noticed the voice was clearer and the dyspnea had nearly disappeared.

Upon the reappearance of the difficult breathing and hoarseness there was in addition cough and bloody expectoration.

When the patient first presented himself for treatment, about November 1, 1899, there was considerable stridor in the respiratory tract, manifestly worse in inspiration. Considerable difficulty attended the initial laryngoscopic examination in consequence of an exceedingly irritable pharynx, a short frenum linguæ, which prevented the proper protrusion of the tongue, and a short, thick band which would continually get in the way of the examiner. However, after some little training, these difficulties were overcome.

Our record shows the following at the first examination: "The laryngeal mucous membrane is unusually vascular. On the right

* Read before the annual meeting of the American Laryngological, Rhinological and Otological Society of Philadelphia, June, 1900.

lateral wall of the larynx, extending from the cord upwards to nearly the base of the arytenoid cartilage, is a new growth, pinkish in color, in part sessile and part pedunculated, presenting a warty appearance and bleeding freely upon the slightest touch of the probe. This growth encroaches somewhat upon the lumen of the larynx; it covers the usual landmarks and the cord of the right side is indistinct.

"Just above the normal position of the true cord there is a pedunculated, warty-looking mass, which during phonation falls over and between the cords. This, doubtless, accounts for the inspiratory effort and the loss of voice. The left side of the larynx is entirely free of morbid growth."

The laryngoscopic appearances and the unusual vascularity led me at once to suspect malignancy. The matter was too serious, however, to be guided entirely by the suspicion, so a determined effort was made to remove a piece for microscopic examination. This was accomplished in a short time and submitted to the pathologist of the Polyclinic Hospital for examination. The pieces removed, several in number, varied in size from the head of a large pin to a pea.

The full report of Dr. Kirkbride is appended. The result of his examination led him to the belief that the growth was probably specific in origin, but at the same time he stated that malignancy was not negatived by the examination of these specimens.

The case was now presented to the Section of Otology and Laryngology of the College of Physicians of Philadelphia and the fellows requested to give their opinions. The consensus of opinion was in favor of syphilis, though I believe that none of the gentlemen present felt that an accurate diagnosis was possible. Acting on the suggestion of some of the fellows, it was determined to place the patient on full doses of the iodides and to increase the same to the point of tolerance.

Adhering to the original view of the case as to its malignancy, and while the iodides were being pushed, an effort was made to clear the larynx and submit the growth from time to time to the microscope in the belief that the deeper structures would show malignancy. This was done, and accomplished two objects: (1) Great relief to the dyspnea, which by this time had become urgent, and (2) the deeper structures showed unmistakable evidence of malignancy. The iodides, of course, were of no avail.

The second report of Dr. Kirkbride is also appended. In this, after a description of the microscopic appearances, he makes the diagnosis of epithelioma (squamous cell carcinoma). In conclusion,

he very properly makes this comment: "This case is therefore interesting as illustrating the difficulty in obtaining a portion of the tumor proper for examination; it also shows that one negative result does not disprove the presence of a malignant growth."

With this very clear and careful report it was felt that some radical measures should be taken. The growth, which had been nearly cleared from the larynx, rapidly recurred, and the patient's condition was again becoming desperate. The growth was still confined to the right lateral wall, though it had encroached more upon the lumen of the larynx than formerly; there were no enlarged glands nor was there evidence of metastasis. The patient's physical condition, other than fatigue from loss of rest and imperfect æration, was splendid. It seemed that if there was ever a case suitable for complete extirpation of the larynx this was one.

The matter was too serious, in my judgment, to rest with the evidence we had. A specimen of the growth was, therefore, submitted to Dr. W. E. Robertson, the pathologist of the Episcopal Hospital. He unhesitatingly confirmed the diagnosis.

In consultation with Dr. G. G. Davis, surgeon of the Episcopal Hospital, laryngectomy was determined upon and performed by Dr. Davis, March 15, 1900. The following is Dr. Davis' report:

"The patient was a stout, well-built man of forty-eight years of age. The operation was one of urgency on account of recurring attacks of dyspnea. His temperature had at times been above normal, but on the day of the operation, which was cold and snowing, he seemed in fairly good condition. The neck was thoroughly cleansed the day previous to operating and covered with a weak, moist bichloride dressing. It was again cleansed previous to operation. The hands of the operators and assistants and nurses were disinfected by permanganate of potash, and all wore rubber gloves except during the removal of the larynx, when the operator removed his and again disinfected the hands with the solution. No general anesthetic was used, eucaine solution, boiled, being injected with a sterilized hypodermic syringe. Seventy-five minims, or three syringefuls, were used during the operation.

"A straight incision was made in the median line from just above the hyoid bone to the suprasternal notch. The facias were divided, the sternohyoid and thyroid muscles loosened and turned aside, the isthmus of the thyroid, which was very small, ligated and divided and the trachea laid bare. On incising the trachea at the lower border of the cricoid cartilage, bleeding occurred, and eucaine was then injected and the divisioning completed with the paquelon cautery.

After the trachea was well opened, eucaine was injected into the posterior wall, the mucous membrane seared with the cautery and then divided with the knife. The trachea was then loosened and brought forward. The larynx was then removed from below upward and from the left side toward the right. Bleeding vessels were caught and carefully clamped with hemostatic forceps. The sides of the upper portion of the esophagus were brought together with two or three catgut sutures; the wound above the trachea was approximated by two silk worm gut sutures. The upper end of the trachea was sutured to the infolded skin by silk sutures and the wound and surrounding parts painted with an ethereal solution of iodoform and benzoin, called Whitehead's paint. He left the operating table comparatively comfortable, breathing quietly, with a pulse of 104, and showing not the slightest evidences of shock. Very little blood had gotten in the trachea and this was at once blown out. When asked afterwards, he stated that he had not suffered much during the operation, except once or twice, which was probably when the superior laryngeal nerves were divided. He was placed in a room, the temperature of which never fell below 80°, the air being kept moist by two pans of boiling water. Gauze was laid over the tracheal wound to prevent the entrance of any dust. Following the operation there was considerable coughing and expectoration of tenacious mucus, for which steam inhalations of alkaline sprays were used. His temperature, which soon after the operation was 101°, gradually rose till the time of his death on the fifth day. On the second and third days he swallowed whiskey and milk, but a small amount making its appearance below, caused us to stop it on the fourth day.

"The tugging on the trachea, due to coughing, caused the stitches, which united it to the skin, to cut through, and most of them were removed on the third day, leaving about a quarter of an inch between the upper end of the trachea and skin. This exposed surface, and also the small raw surface below the wound above and the posterior upper edge of the trachea, suppurated. The wound above, from the hyoid bone to the upper edge of the trachea, healed by primary union except a small fistulous tract. On the third day his mind was somewhat disturbed, on the fourth he was wildly delirious and died on the fifth day. There was at no time any evidence of bronchopneumonia. Post-mortem examination revealed an intense congestion of the trachea, but no evidences of pneumonia. The other organs showed a highly congested and softened condition that the pathologist, Dr. Robertson, regarded as an indication of sepsis. There were a few drops of pus when the trachea had been drawn

forward from the esophagus, but no confined or extended collection. The wound from the hyoid bone to the trachea below was healed by primary union, with the exception of a very small fistulous tract. Cultures made from various organs showed abundant streptococci, and death was attributed to streptococcus infection.

"That death was due to infection, being probably true, the question arises as to the source from which it came. That it came from without, in view of the precautions taken, I cannot believe. It probably came from the lower end of the larynx, as it was the seat of an ulcerating carcinomatous mass. If he was affected at the time of the operation with a mild streptococcus infection, the operation was sufficient to account for its rapid increase and fatal result. The healing of the upper wound seems to show that the infection was mainly located in the parts below. The technique of the operation is by no means settled. Some say to do the tracheotomy and remove the larynx at the same sitting. It is needless, perhaps, to say that, in view of my experience in this case, I no longer favor this procedure. The doing of a preliminary tracheotomy would have fixed the trachea in position, and had coughing followed, a subsequent removal of the larynx. The trachea would not have jumped up and down, tugging itself loose from the skin attachment, as occurred in this case. I see no advantage from packing the wound, as in the present case it healed by primary union.

"In this case, an esophageal tube allowed to remain in would have been of no particular service. He swallowed well on the second and third days and could have swallowed, had we let him, on the fourth."

The following are the notes on the necropsy by Dr. Wm. E. Robertson:

"*Carcinoma of Larynx.*—Necropsy about twelve to fourteen hours p. m. Body of a very muscular man. Subcutaneous fat, very well developed. Post-mortem, rigidity moderate and that only in lower extremities. There is a partly healed operation wound in the middle line of the cervical region. Small amount of pus along edges of wound just above attached tracheal opening. Esophagus seemed to be entirely closed.

"*Thoracic Cavity.*—No pleural adhesions. Pleural cavities dry.

"*Lungs.*—Intensely congested drip on section. Crepitate fairly well throughout; no apical sears; no bronchitis or bronchiolitis, but the mucous membrane of the trachea and bronchi, down to the finer ramifications of the latter, were intensely red.

"*Heart.*—Pericardial fluid about normal. Musculature soft. Endocardium intensely dark red in all four cavities, especially on the right side; however, no valvular defects. Eustachian valve not patulous.

"*Abdominal Cavity.*—Liver enlarged and of a peculiar uniformly pale color—a light chocolate. No gall stones.

"*Spleen.*—Enlarged, quite soft, and on section presented what I took to be capillary extravasations.

"*Kidneys.*—Red, soft, enlarged, seat of parenchymatous change; recent and old interstitial change. Capsule stripped with difficulty, leaving a granular surface. There were areas of what I took to be capillary extravasations in the cortex and between the pyramids.

"*Pancreas.*—Softened, parenchymatous change.

"*Intestines.*—Congested in small areas here and there. Appendix normal.

"*Cultures* from *heart*, *blood*, *spleen*, *liver* and *lungs* showed a *streptococcus* in *pure culture.*

"The tissues removed from the larynx intra-vitam and that taken post-mortem presented the same character, viz., a squamous epithelioma, containing numerous papillary outgrowths in and around it. Pearly bodies were present in great numbers. It was impossible to say with absolute certainty where it arose, but, from the nature of the growth, it must have taken origin from the vocal cords, either the true or false, since they are the only regions in the larynx provided with stratified squamous cells."

What is there to be learned by a review of this case?

Firstly.—Was complete extirpation of the larynx the proper procedure? Of this, I think, there can be no doubt, for the following reasons: The diagnosis had been carefully and certainly made; the patient's life was in imminent danger, necessitating some radical procedure for relief. There were three measures from which to choose to accomplish this result: (1) Tracheotomy: This would have been only a palliative measure and given but a brief respite, and hence discarded. (2) Partial laryngectomy: Removing all visible diseased tissue from the larynx, but leaving the framework. I have never felt that this operation was a rational surgical procedure in malignant cases for the reason that we can never be quite sure that all malignant tissue has been removed; hence I urged against it. (3) Complete laryngectomy: This latter was selected because it gave the patient a chance of complete recovery and at the same time relieved the urgency of the symptoms.

Secondly.—Is there aught to learn in the technique of laryngectomy from the present case? My experience in these lines has been too limited to venture upon a discussion of the surgical aspects of the case. I will leave that to abler hands. But there is one feature which the experience gained in this case emphasizes, and that is the necessity for fixation of the trachea by a preliminary tracheotomy.

In discussing the various steps of the operation with Dr. Davis prior to its performance I advocated this step, but it was not with the idea of fixing the trachea so much as to accustom the bronchia and lungs to the new method of receiving air and to render the administrations of a general anesthetic possible, which seemed to commend it.

In the light of the present case, even more than these much to be desired conditions, is the elimination of an extra source of infection which the tugging of the trachea and consequent breaking of the stitches caused.

Thirdly.—From whence came the sepsis which seemed to bring about the unfortunate termination? I am in entire accord with Dr. Davis as to the improbability of infection being introduced from without during the operation. Every possible precaution was taken; the operation was done in a careful, painstaking and thorough manner. Very little blood entered the trachea, indeed comparatively little blood was lost during the operation, thanks to the free use of hemostats.

The intra-laryngeal surgical measures, which were necessitated for both diagnostic and palliative measures, doubtless induced necrosis of the tissues, and, as Dr. Davis has suggested, there may have been in consequence a mild septic condition present prior to the operation, which was lit up by the latter procedure.

Just what part the suppurating surfaces around the trachea played it is impossible to tell, but there is some ground for the belief that it was an element in the fatal termination.

PRELIMINARY PATHOLOGIC REPORT.

The microscopic examination of the very small specimen received at the laboratory shows it to be a cellular tissue made up chiefly of lymphoid cells and polymorphonuclear leucocytes, together with endothelial cells derived from the lymph and blood vessels. The latter are apparently newly-formed vessels such as are found in granulation tissues. They all show swelling and proliferation of the endothelial lining, in some sufficient to close completely the lumen of the vessel. Around many of the vessels the connective tissue is thick, and, in places, hyaline. On the free surface of the specimen necrosis has occurred, and the tissue is invaded by

numerous bacteria of various types, including bacilli, streptococci and diplococci.

Slides stained for tubercle bacilli fail to show the presence of that organism.

Only a very small clump of epithelial cells is present in the sections and these present no special changes.

Plasma cells and eosinophile cells are fairly numerous, scattered here and there among the other cells.

Diagnosis.—The specimen presents the appearance of a new-formed inflammatory tissue (granulation tissue) with superficial necrosis. The cause of the inflammation cannot be determined, but the changes in the vessels, together with the presence of plasma cells, forcibly suggests a syphilitic origin.

A further report will be sent when the examination of the second specimen from the same case is complete.

Later pathologic report. See also report of $\frac{\text{No. } 172}{\text{P. } 60}$.

The specimen is a small, irregularly-shaped piece of tissue, 4 to 5 m.m. in its greatest dimension.

Microscopic Examination.—Specimen stained with hematoxylin and eosin.

The specimen is composed of stratified squamous epithelium and vascular connective tissue rich in cells. The layers of the epithelium show great variation in width, but are in general thicker than normal. Between the connective tissue papillæ the epithelium projects in places deeply into the underlying tissue. In many of the projections the arrangement of the epithelium in relation to the connective tissue is perfectly normal, a sharp line marking the limits of the neighboring tissues. Elsewhere, however, this sharp demarkation is lacking, and the epithelial cells are found in irregular bands and clumps, more or less infiltrated by small, round cells of the connective tissue by which they are surrounded on all sides. That these displaced epithelial cells are rapidly proliferating is shown by the nuclear figures present in many of them.

Throughout the specimen there is a considerable infiltration by polymorphonuclear leucocytes.

Diagnosis.—*Epithelioma* (squamous cell carcinoma).

NOTE.—In specimen $\frac{\text{No. } 172}{\text{P. } 60}$ from the same case no portion of the epithelial neoplasm was present. Specimen $\frac{\text{No. } 182}{\text{P. } 162}$ (also from the same case), although suspicious, would not have justified a diagnosis of epithelioma. The case is, therefore, interesting as illustrating the difficulty in obtaining a portion of the tumor proper for examination; it also shows that one negative result does not disprove the presence of a malignant growth.

PRIMARY CARCINOMA OF LARYNX—REPORT OF A CASE.*

BY DR. T. H. FARRELL, UTICA, NEW YORK.

This seems in every respect a typical case. It occurs in a man and Gerhardt says it is "three times more common in men than women." It occurred between the ages of fifty and sixty, in which decade Jurasz showed the disease to be most frequent, and it proved to be an "epithelioma," which, according to Jonathan Wright, is "the form most usually observed."

F. K., aet. fifty-four, German, saloon-keeper, a veteran of the civil war, first consulted me April 12, 1899. He is the youngest of ten children, all living and in good health. He had had pain in swallowing for three months and had lost about forty pounds of flesh. Some weeks ago a general practitioner had excised the uvula, believing it to be the source of the dysphagia. Laryngosopic examination showed a grayish fungus growth confined to the left side and involving the margin of the epiglottis, aryepiglottidean fold, arytenoid cartilage and extending a short distance on the glossoepiglottic fold. True cords not involved; voice unimpaired. No involvement of glands.

April 29th I excised two pieces for examination by the microscope and submitted them to Dr. Moffatt, of Utica and Dr. George Blumer, of the Bender Institute, Albany. Both reported epithelioma. Dr. Blumer writes: "I examined the laryngeal tumor yesterday and found it to be a typical epithelioma, quite cellular, and as far as one can judge from microscopic appearances I should say quite malignant."

On presenting the facts and prognosis to the patient, he said if an operation could be done at home he would submit, but would not go to New York or Philadelphia.

After reading up all the available literature, a great deal of which in regard to the technique of the operation seemed to have been written rather to befog than to enlighten, I undertook the operation in association with Dr. J. D. Jones, a general surgeon, on May 24, 1899.

We began by doing a low tracheotomy and inserting a Gerster's tampon cannula through which the chloroform was administered.

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* Read before the American Laryngological, Rhinological and Otological Society, June 2, 1900.

Then a longitudinal incision was made extending from the hyoid bone to the third or fourth ring of the trachea in the median line and a transverse incision along the line of the hyoid bone.

A rather free dissection was then made with the idea of freeing the larynx so that a total extirpation could be accomplished if it proved advisable. This was a mistake, as in spite of ligaturing the vessels, the oozing was troublesome, besides it formed a pocket for the subsequent development of cellutis and suppuration. The oozing was perhaps due in part to the low position of the patient's head.

The thyro-hyoid membrane was now exposed and incised. The neoplasm proved to be confined within the limits previously described. No attempt was made to save any part of the epiglottis, and the removal of the growth was begun from in front, inserting a silk ligature into the epiglottis to facilitate the manipulation. In order to give more room for working we did a thyrotomy, cutting open the larynx along the median line. The growth was separated till its only attachment was to the pharyngeal wall when a ligature was thrown around the pedicle and the growth separated. One of the greatest difficulties in the whole operation was now encountered, viz., the bringing together of the pharyngeal mucous membrane so as to cover the denuded surface. It was here that Dr. Jones' experience in working at the bottom of deep cavities stood us in especially good stead.

The cut edges of the thyroid cartilage were sutured together and the skin flaps brought into place and sutured, except at one point where a catheter inserted in the esophagus was given exit. The Gerster's apparatus was withdrawn and an ordinary tracheotomy tube was inserted. The patient was put to bed, and the foot of the bed elevated. This position was very distressing to the patient and could not be maintained continuously. In fact he often sat up in bed to cough. The day following the operation his temperature rose to 100½° (pulse 120) after which it remained under 99½°, most of the time being normal. The pulse varied from 70 to 109. During the first three or four days the respirations were between 30 and 35 per minute, after which they varied between 18 and 28. The secretions from the wound were excessive, requiring frequent change of dressings. Great quantities of muco-pus were raised through the tracheotomy tube, requiring the constant attention of a nurse to keep the tube free. In spite of this care the tube required frequent removal to allow of thorough cleaning. One night during the first week an assistant undertook to do this and re-introduced the tube in front of the trachea to the great distress of the patient and with almost fatal results. To add to our perplexities the patient swallowed his feed-

ing catheter through some carelessness in feeding, and it was not passed till October 24th—five months later—unchanged except for slight discoloration. It produced no bad effects, however, and another catheter was introduced into the esophagus having a very large safety pin near the outer extremity.

Free stimulation was kept up for the first two weeks. About this time the mental anxiety, with loss of sleep, brought on a mild attack of acute mania, which lasted several weeks.

The horizontal incision healed by first intention. A cellutis in the flap on the left side caused considerable swelling and traction on the stitches in the vertical incision so that they all gave way. Suppuration took place requiring packing under the left flap for some weeks. The stitches in the thyroid cartilage gave way and allowed of the cut edges moving on one another. During this time the right flap became attached to the larynx with inversion of its edge. Eventually this had to be dissected up and the two skin edges drawn together with silver wire. The tracheotomy tube was left out June 9th (sixteenth day) and the opening into the trachea allowed to close. On July 15th (twenty-seond day) the catheter was dispensed with and a stomach tube introduced through the mouth at each feeding, which the patient soon learned to manipulate with great dexterity. There was much difficulty in passing the stomach tube until we tried one of Tiemann's, with a taper point and two velvet eyes on the side.

Before the operation the patient's weight had fallen from 212 to 185 pounds. Following the operation it fell to 149 pounds by the end of the first month.

Present condition: The external wound is entirely healed and closed; the larynx is smooth and free from recurrence. The motion of both cords is good, giving a very fair voice. The patient has learned to swallow semi-solid foods, but cannot swallow liquids. I think this is due to the cellutis producing bands of adhesion restricting the motion of the larynx and preventing it being carried close up under the base of the tongue. The general health is good—his weight now being 175 pounds.

There is a recurrence of the growth in the cervical glands on the left side, which has increased rapidly in size in the last few weeks. It is firmly attached to the larynx and extends back under the sterno-clido-mastoid.

The lessons impressed on me by the operation are: (1) the advisability of a preliminary tracheotomy; (2) the comparative harmlessness of a thyrotomy, even in association with other extensive operative procedures; (3) the importance of skilled nursing, and (4) the advantage of the co-operation of a general surgeon.

REPORT OF A CASE OF TIC DOULOUREAUX.*

BY F. H. KOYLE, M.D., HORNELLSVILLE, N. Y.

I wish to present a report of a case of *tic douloureaux* which seems unique in view of the fact that, although it was apparently due solely to nasal and accessory sinus causes, it proved to have little, if any, relation to these structures.

On June 1, 1897, Miss W., age forty-eight, was referred to me by a prominent local dentist who had made a diagnosis of probable disease of the maxillary antrum.

The history of the case is as follows: Pain first appeared in the right side of the face about fifteen years ago and has been more or less continuous ever since. It has different starting points, sometimes appearing over the right malar eminence, sometimes appearing to the nasal side of the infra-orbital foramen, while at others it starts in the temple. The paroxysms of pain are very frequent, are produced by talking and by mastication, and are of a sharp, stabbing character. Occasionally, on leaving the house for a walk, she has a stabbing pain about the region of the infra-orbital foramen, followed by a copious discharge of a watery fluid from *one or the other side* of the nose. She has had all kinds of medicinal and electrical treatment, including cataphoresis, at the hands of prominent specialists in Boston and Buffalo, but in every case with negative results. She was finally referred to a dentist. In December, 1896, the first bicuspid on the affected side was extracted and was found to have an abscessed root. Six weeks later the second bicuspid was extracted, and four weeks subsequently the canine. Immediate, but temporary, immunity from pain followed each extraction, the longest period of relief following the last operation.

There had never been a purulent discharge from the nose, nor had there been noticeable intra-nasal pain, although there was a constant sensation of fullness about the region of the maxillary antrum. The right cheek is always a little swelled and becomes scarlet with the onset of a paroxysm. The right eyeball is never painful. The patient cannot sleep on her right side, contact with even a soft pillow causing pain. She is very neurotic, so much so that if, even when free from pain, her attention is directed to her complaint, a paroxysm occurs. Her life is one of long daily dread,

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every moment expecting the onset of a paroxysm and the expected usually happens. Any effort at manipulation of the painful areas caused so much distress that I was compelled to desist.

On examination of the nose I found an enormous exostosis of the right side, the crest of which was deeply buried in the inferior turbinate, while its superior surface impinged on the lower border of the middle turbinate. The left side of the nose was found to be normal, On transillumination the right antrum remained dark, the left showing a normal reflex. Assuming that the negative result of the transillumination was due to the presence of something foreign to its integrity, I advised its exploration as well as the removal of the exostosis.

The latter operation was declined, but the former agreed to, whereupon I immediately drilled into the antrum through the canine fossa. To the disappointment of both myself and the dental surgeon, who was present, nothing was found which would seem to bear a causative relation between the facial neuralgia and the antrum. A thorough search with a probe and curette revealed nothing abnormal except a slightly thickened, smooth mucosa.

The result was satisfactory only in so far as it explained the failure of transillumination to light up the right antrum. My only consolation was the reflection that many others have dropped a bucket into a well and failed to draw up pearls, transillumination having served them as it did me.

Unlike the effect of counter-irritation produced by the extraction of the teeth, the exploration was not followed by relief. Neither did it seem to aggravate the existing conditions, the paroxysms continuing to recur with their wonted frequency.

Finding the patient obdurate in declining further operative procedure, I was compelled to speculate on other probable causes of her convulsive tic. Reverting to the history of the case, I was struck with the fact, which I had till then overlooked, that the hydrorrhea had appeared sometimes from the right side of the nose and sometimes from the left. On further inquiry this proved to be the case, the discharge never having come from both sides simultaneously. This appeared so strange, in view of the fact that absolutely nothing abnormal had been found in the left side of the nose, that I felt warranted in suspecting *a reflex neurosis of ocular origin*. I was further led to investigate this as a possible cause from the fact that it was only at the *beginning* of her walk that this phenomenon occurred. Reflecting upon the fact that, under similar circumstances, sneezing frequently occurs as a result of the entrance of strong sunlight into

the eyes, I thought it wise to make an ophthalmic examination. On inquiry I found that glasses had been prescribed by a New York oculist for both distance and near work, but they had not proved satisfactory. Having had some experience in dealing with refractive errors and muscular anomalies, I proceeded to examine my patient's eyes, with the result that a moderate degree of hyperphoria and a considerable degree of esophoria was found, together with compound myopic astigmatism for distance. Glasses were ordered for the last-named condition, as well as for the presbyopia, and a systematic course of muscle training was inaugurated for the development of the weak ocular muscles. For the next seven days, during which I personally conducted the exercises twice a day, there was a marked improvement in the heterophoric condition, as well as an appreciable abatement in the intensity of the neuralgic paroxysms, their frequency, however, remaining undiminished.

During the following month the patient conducted the exercises herself. Her report of continued improvement was then verified by an examination which showed the amount of heterophoria reduced by fifty per cent. Three months later there was found only one-third of the heterophoria revealed at the first examination.

During the eight days following I personally conducted the exercises, at the expiration of which time orthophoria, or absolute muscle balance, was found to obtain both for distance and near tests.

By this time the neuralgic attacks had decreased to such an extent, both in frequency and severity, that instead of the agony of constant anticipation and dread, and the anguish of the pain itself, a paroxysm was now an unlooked-for occurrence and was both infrequent and inconsequent.

Six months later a letter from the patient was received in which she said the pain had entirely disappeared.

At this point permit me to apologize for having introduced the science of ophthalmology, with which, no doubt, very few of you are familiar. But as earnest, scientific men, we cannot afford to ignore any branch of science which brings us nearer to the goal for which we are earnestly striving.

The laryngologist must always be a rhinologist, else he will fail to recognize the origin of hoarseness and various other catarrhal affections of the larynx. The otologist must always bear in mind certain nasal and naso-pharyngeal causes of diseases of the ear. The intimate association of diseases of the nose, throat and ear is such that one must be conversant with all three if he wishes to be successful in the treatment of any one of them. The ophthalmologist, also,

recognizes the fact that his case of phlyctenular ulcer possibly had its origin in the nose, and forthwith refers his patient to the rhinologist.

Why should not we, then, in a difficult case of tic douloureaux, after failing to relieve our patient by treatment which certainly seemed to be indicated, refer him to the ophthalmologist for further investigation and treatment? The case which I have presented is surely not an isolated one, for it must undoubtedly be the case that many an ophthalmologist can count among his successfully treated clientele numerous cases of tic douloureaux which have failed to secure relief at the hands of either rhinologist or general surgeon.

A recent writer in the *Journal of Nervous Diseases* makes the claim that facial neuralgia is sometimes due to stricture or other diseases of the lachrymal duct. In a recent paper, Sargent Snow, of Syracuse, has found it due to disease of the accessory sinuses. Their results would seem to prove that the pain in their cases was due to the interference of sensory function caused by peripheral irritation.

In my case, as well, peripheral irritation finds expression in the vascular disturbance (flushing) of the right side of the face, nasal hydrorrhea, and pain in the regions supplied by the superior maxillary divisions of the fifth nerve. Since the fifth nerve has two roots, thus resembling a spinal nerve, any irritation transmitted to its posterior root will produce a reflex neuralgic pain due to the resulting alteration of the sensory function.

In the case presented there remains to be shown the relation between the third nerve (motor oculi) and the fifth, which resulted in neuralgic manifestations.

It will be remembered that the iris is under the control of the ciliary ganglion which is the connecting link between the two nerves, the sensory root being derived from the ophthalmic division of the fifth, while the motor root is derived from the third nerve. The sphincter of the iris, being innervated by the third, its contraction, through the motor root of the ciliary ganglion, involves reflexly the sensory root which is derived from the ophthalmic division of the fifth, and which, through its nasal branches, supplies part of the nasal mucous membrane.

The third nerve, also, was chiefly concerned in the heterophoria to which reference has been made. It will thus be seen that the *ciliary ganglion* was the medium through which an irritation, originating in the third nerve, produced a reflex facial neuralgia, or tic douloureaux.

199 Main street.

CEREBRAL ABSCESS FOLLOWING CHRONIC OTITIS MEDIA PURULENTA—OPERATION—RECOVERY.*

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Aside from the desirability of reporting all operated cases of cerebral abscesses that each may add its share to the existing knowledge of the disease, the case before us possesses some peculiar points which make it of more than ordinary interest. At the request of the patient's family, P. H., single, twenty-five years of age, was seen at his home in an adjoining town, August 16, 1897. The patient and his family were Bohemians, and spoke but very little English; however, the following history was made out:

When a child he had an attack of acute otitis media purulenta, which was followed by an abscess behind the ear, evidence of which still remained in a shrunken cicatrix immediately over the usual site of the antrum. He had been sick in bed two or three weeks, and had a profuse fetid discharge from the ear. The superior and posterior walls of the canal were so greatly prolapsed as to preclude any further inspection of the tissues beyond this point, though the probe gave evidence of a carious condition of the tympanic walls. His pupils were about normal, and equal in size. No information whatever could be obtained from the patient himself, and when questioned, would either grin or laugh and give some answer entirely foreign to the subject. The family stated that he complained at times of pain in the left side of the head, that he had been growing weaker and had no appetite. His pulse was 56 to the minute, and his temperature normal. The diagnosis made was chronic purulent otitis media, and mastoid disease, with probable cerebral abscess.

On the following day he was brought to the Easton Hospital in an ambulance for the purpose of operating. After his admission, another attempt was made to obtain a more complete history, and as one of the attendants spoke the Bohemian language fairly well, this might have been expected to succeed, but the same sardonic grin was his only response to whatever questions were put to him. At this time an attempt was made to examine the fundi of the patient's eyes, which, owing to his mental condition, did not suc-

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ceed; however, after being etherized, and before operating, the attempt succeeded, and a decided optic neuritis of the affected side was made out, which made the diagnosis of cerebral complications still more probable.

At this time there appeared to be no paralysis or paresis of any part of the body, though there was much rigidity of all the voluntary muscles, so that whenever he attempted to move his arms or legs the motion was always slow, and whenever an attendant attempted to move them, the result was always the same.

Before the anesthetic was administered, his hair was removed rather more extensively than is usual in mastoid operations, on account of suspected cerebral complications. The skin over the shaved area was cleansed, the usual incision behind the ear was made and the periosteum was removed in the usual manner. The mastoid was opened with the chisel and mallet, and as is usual in these cases of old mastoid trouble, the bone in the locality of the old abscess was of ivory density, and the pneumatic spaces were almost entirely wanting, and although the mastoid process was almost completely removed, no pus or granulating tissue was found in it. The chiseling was carried forward, enlarging the aditus amply for exploring the attic and tympanic cavity, after which this region was thoroughly curetted and left clean and smooth throughout.

The incision was now extended from a point immediately above the ear, upward about two inches, and at a point about three-fourths of an inch above the bony canal; a three-quarter-inch trephine was used to remove a button of bone from the cranium. There was nothing unusual in the appearance of the dura in this region and it was not opened. A large aspirating needle was now introduced into the brain in various directions for the purpose of locating an abscess, if such existed, and as the needle was introduced inward on a level with the opening, and backward at an angle of about 45°, and to a depth of two inches, fluid was found, of a sero-purulent character, containing some stringy, flocculent material and some blood. The aspirated material was not foul smelling. The blood seen in the fluid was probably accidental, as that first aspirated was practically free from a reddish cast. Something more than a half ounce was all that could be obtained, and this was preserved for examination. On the evening of the same day, the specimen was presented to Dr. Kotz, of Easton, for microscopic examination, who reported it to contain pus cells, broken-down brain cells and granular matter, the usual constituents of cerebral abscesses.

After becoming satisfied that there was no more fluid to be obtained, the periosteum and scalp were replaced over the opening, and were secured with silk-worm gut ligatures down to the ear, and the mastoid and tympanum were cleansed, dried and dusted with iodoform, and packed with iodoform gauze, and the whole secured with sterilized gauze, cotton and a roller bandage. After recovering from the ether the patient was quite restless, and his pulse was 130 to the minute, and quite weak. At this time he was given a hypodermic of morphia, soon after which the pulse fell to 110 and much better quality. The night following the operation the patient slept well, but passed his urine and feces involuntarily. He complained of no pain, neither did he make known the fact that he had any want which required attention; and the histories of the daily appearance for the next two weeks were practically duplicates of the first twenty-four hours.

The task of caring for this patient for the next four weeks was no easy one; unless he was tied to his bed he would leave it immediately when left alone. If his hands were left free, he would pull his bandage off, and his urine and stools were passed in bed; nor was it of any use to get him up for this purpose, for quite likely he would return to bed, and immediately pass them there; all of which necessitated his being kept in a room by himself. The matter of feeding the patient for the first two weeks after the operation was equally difficult. Sometimes he would hold his food or medicine in his mouth for an incredible length of time, and on the first favorable opportunity would endeavor to spit it into the face of his attendant. During this time, if a nurse got her fingers too near his mouth he would attempt to bite them; in this, however, he never exactly succeeded.

About this time we were beginning to speculate as to what was to be the outcome of the case mentally, provided he recovered physically; for although his general appearance, his strength and other symptoms were gradually improving, the same could not be said of his mind; for during the first two weeks his mental state remained in about the same condition as before operating, though there was a general improvement. For instance, at about the end of the third week, while dressing the mastoid one day, he complained that it "hurt," and asked where, he replied "in the old country." This, though irrevalent, *was* an improvement.

On the day following the operation, the temperature rose to 102.4°F., and two days later to 103.2°, after which it gradually subsided till the twenty-eighth day when it was 99.5°. On the

twenty-eighth day he was allowed to sit up for the first time, and on the following day his temperature rose to 104.4°. Whether the extra exertion was responsible for the rise in temperature, I do not know; however, the rise was not preceded or accompanied by a chill, nausea, vomiting or other disturbance. On the day following this —the thirtieth—the temperature dropped to less than 101°, from which it gradually subsided till the thirty-ninth day when it became normal.

With the subsidence of the temperature, after the abrupt rise on the twenty-ninth day, his mind began rapidly to improve, and soon he began to make known his desires to attend to the calls of nature, and also would answer questions in a much more rational manner, which improvement continued until his discharge from the hospital, on the fifty-sixth day, at which time he had entirely recovered his mental faculties, so far as we were able to judge.

The filling in and closing up of the mastoid required about sixteen weeks, at which time he appeared mentally and physically well, and was able to return to his work—that of a blacksmith. I have recently made inquiry of his employer regarding his mental state, and he informs me that his intelligence appears to be as great as before his illness, and I may state here that I now meet him occasionally, more than two and a half years after the operation, and he appears to be in the same condition.

Some of the points worthy of special notice in the case, are: 1. The nature and extent of the involvement of the mental faculties. To all intents and purposes his mind was a perfect blank. He did not realize his most urgent wants, nor was he able to put forth the least effort to relieve them; and after his recovery, there remained a vacancy of five or six weeks, of which time he had not the slightest recollection. 2. Although there was no paralysis or paresis that could be made out, as stated above, there was a semi-rigidity of all the voluntary muscles, which persisted for several weeks after the brain had been relieved of the pressure of the abscess; which latter also points to cerebral irritation. 3. The vice of manner which he exhibited in attempting to injure his attendants during the first few weeks after the operation, finds no place in his natural disposition, for after recovering sufficiently to be about the wards, a more kind or docile patient is seldom seen.

The location of the abscess, as will be seen by the direction of the aspirating needle when evacuating the abscess, was in the temporo-sphenoidal lobe, and from an actual experiment on a cadaver, a needle introduced as above, the point was found opposite to, and quite near, the posterior horn of the lateral ventricle.

It has been a source of regret to the operator, that at the time of operating, an opening into the brain sufficiently large to admit of a thorough exploration of the source of the fluid, was not made, which will always leave some uncertainty as to the exact location of the fluid obtained; whether it was the product of an abscess, and existed as such at the time of the operation, or whether there had been a small abscess in the vicinity of the lateral ventricle, and had ruptured into the ventricle, from whence it was aspirated.

That there was destruction of brain tissue is evident from the positive presence of broken-down brain cells, as found by a competent pathologist; hence an abscess must have existed, either at the time of operating, or a short time previously, and had been evacuated into the lateral ventricle.

The condition of the patient's mind previous to the operation, and for some weeks afterwards, is not common in those suffering from cerebral abscess; and yet in this case there is nothing in the history pointing to any other cause, while from what history is available, an abscess of the brain is exactly what one would expect to find.

TREATMENT OF HAY FEVER.

BY SETH SCOTT BISHOP, B.S., M.D., CHICAGO.

Professor of Diseases of the Nose, Throat and Ear in the Illinois Medical College; Professor in the Chicago Post-Graduate Medical School and Hospital; Consulting Surgeon to the Thompson Hospital, Etc.

In an article by E. B. Gleason, in the *International Medical Magazine* for August, the results of his experience in treating hay fever in subjects of the uric acid diathesis were very gratifying. He recommends hydrobromic acid on account of its sedative qualities, and nitro-muriatic acid because it is thought to limit the production of uric acid.

During the past three years Gleason has prescribed nitro-muriatic acid in doses of three to five drops of the freshly prepared, concentrated acid after meals, and sometimes at night. This is diluted with half a tumbler of water. After taking this dose the mouth must be rinsed with water and another half tumbler drank. "The relief of all hay fever symptoms is usually sufficient to enable the patient to remain at home and attend to his ordinary business engagements in comparative comfort. During the past three years nitromuriatic acid absolutely failed to afford any relief from the symptoms of hay fever in only one case."

Gleason refers to the writer's use of acids in hay fever as first set forth a number of years ago in several publications of my experiments with acids in hay fever subjects. An editorial in the July number of the *Wisconsin Medical Recorder*, and numerous other journal articles and books, have recommended the acid treatment of hay fever on the lines laid down in my earlier papers on the subject, quoting me as authority for this as the most effective treatment. These writers have overlooked the fact that, notwithstanding the efficacy of the acid treatment, I have repeatedly emphasized the greater value of an eliminative treatment, and this, too, in connection with the details of my experiments with the acids.

It is surprising and inexplicable that many authors, who have adopted and recommended remedies based on the writer's uric-acid theory of hay fever, have chosen the precipitating, or cumulative, treatment with acids instead of the eliminative method, which frees the body from the excess of uric acid instead of storing it up for future suffering.

When the blood is rich in uric acid a dose of acid precipitates the uric acid from the blood, and it is stored up in the more alkaline tissues, such as the liver, spleen, cartilages, joints and fibrous tis-

sues, only to be dissolved out of these structures when the blood becomes alkaline again while the body is inactive during the hours from midnight to morning. In health, about five to eight grains of uric acid are secreted every twenty-four hours, and it is readily soluble in the blood, which is slightly alkaline. If there is increased formation of this acid, no harm results so long as it is properly eliminated and the ratio between it and the urea is not disturbed. But it is evident that, since the administration of acids causes a retention of uric acid in the body, the persistent use of the acid treatment eventually defeats the object of treatment. That is, it causes a retention of the irritant we desire to eliminate. In all his publications on this subject the writer has endeavored to make it plain that the use of the acid treatment was recommended for temporary relief only during an attack, and that at all other times the remedies should be of such a character as to cause the uric acid to be thrown out of the system, principally through the kidneys.

In order to make this clear, it may be permitted to quote a paragraph from the author's work on "Diseases of the Ear, Nose and Throat," 1898, page 250:

> A course of salicylate, salicin, lithium, etc., will remove the excess of uric acid. If an alkali is given it is likely to produce uric acidemia and precipitate an attack of the trouble we are endeavoring to prevent. For an attack, then, a dose of acid should be given to free the blood of uric acid; then the salicylate of sodium should be given for two or three days or longer, to sweep it out of the body; but the salicylate should not be given during the attack, for it may aggravate the symptoms. For a fortnight or a month, perhaps longer, preceding the regular season of attacks of nervous catarrh, from two to six grains of the salicylate should be given every day or two, in order to get and keep the quantity of the acid in the body down to the normal amount. The copious use of the stronger lithia waters is advantageous, also. Warner's tablets of effervescing citrate of lithia are excellent, and the same may be said of alkalithia and the effervescent citrate of lithia, soda and potash. The writer now depends mostly upon lithia as a preventive remedy.

It is desirable to have a urinalysis made in all cases of hay fever to determine whether there is an excess of uric acid as compared with urea, and whether a sufficient amount is being excreted or not. While the relative proportion of uric acid to urea in health is 1 to 33, in a hay fever sufferer, a professional man from Tennessee, the proportion was 1 to 25. In another professional man, of Chicago, the ratio is at present 1 to 32, and he is eliminating only two-thirds as much per day of uric acid as he should, showing that the excess is being stored up in his body. This patient was under treatment for hay fever, and I advised him to avoid meats and sweets as much as possible and to take 20 or 30 grains of lithia a day with a generous

amount of water. At the next visit he took me to task for placing him on a vegetable diet, for his family physician, who was treating him for starchy indigestion, had interdicted a vegetable diet and prescribed animal food. He was in much the same predicament as the Phrygian king, Tantalus, in the lower world. "You prohibit food from the animal kingdom, and my family doctor denies me food from the vegetable kingdom," he said. "What am I to do? I will eat whatever I like." He did. He ate all the meat he wanted, and in about a week I received a letter explaining that he did not return to my office for treatment because he was suffering so severely from an attack of rheumatism that he could not turn over in bed without assistance. This might well be termed a uric-acid storm. When the accumulation reached a certain stage, he was overwhelmed with its toxic action.

I will mention briefly my most satisfactory experience after prefacing the remarks with the statement that if abnormalities exist in the nasal cavities, and they are of such a character as to favor attacks of hay fever, these anomalies should be removed.

While I reaffirm all I have said of the value of the acid treatment for temporary relief during attacks of the paroxysms, the most gratifying results have been obtained from the use of lithia. The effervescing tablets, containing 3 or 5 grains, should be taken every morning and night, so that one gets from 15 to 25 grains a day in divided doses.

I may say, though guardedly, for there is danger of hay fever sufferers being over-feeders on an animal diet, if 10 or 15 grains are taken just after a meal, of which butcher's meat constitutes a part, the suffering which is usually consequent upon such a diet can be averted. But such meals should be rare, say once or twice a week. It has often happened that one has indulged in such a meal unaccompanied by the lithia, and soon afterward the symptoms of uric-acid irritation (sneezing, etc.) have begun to develop, and an immediate resort to a large dose of lithia has prevented the impending attack.

It is important that an abundance of pure water be taken every day. Patients will not drink as much water as they are urged to do, so it is best to advise them to drink as near a gallon as possible a day. This dissolves the uric acid out of the alkaline tissues, and in a largely diluted condition carries it out of the body through the kidneys, skin and bowels. If this method of eliminative treatment, so briefly and imperfectly outlined, is faithfully carried out, the most satisfactory results can be confidently expected in all of the uric acid cases.

103 State Street.

SOME OBSERVATIONS UPON THE COMMON DISEASES OF THE THROAT AND OF THE NASO AND ORO-PHARYNX.

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In order to consider the subject in hand, it is essential that we first turn our attention to the mouth, the principal source of many of the common diseases of the throat and naso and oro-pharynx. The source because of its peculiar function which makes it one of the most vulnerable points in the whole body for the invasion of micro-organisms.

A number of well-known dental pathologists, such as Goadby, of Guy's Hospital, London; Miller, of Berlin; Vignel and Chequet, of France; Podbelleski, of Russia, and our own Sternberg, have isolated forty-two of these micro-organisms. Many of them were found in healthy mouths, which would make it seem that such

bacteria in conditions of health are not injurious. But when we consider that only four per cent of Americans have all of their teeth, we have abundant proof that either the modern mode of living is wrong, or that our foodstuffs are laden with germs which only require the moisture of the mouth for development.

The lactic acid-forming germs are the most destructive organisms found in the oral cavity. They cause caries of the teeth and they precipitate from the saliva a product which rests upon the teeth as tartar and upon the tongue as a brownish-white coating. The coated tongue, whether or not by its appearance indicating this or that disease, is another medium of germ development in the mouth, and although a scavenger itself ought to be religiously cleansed. I have devised a small scraper for this purpose (see illustration) made of main spring steel in the shape of a loop, attached to a Y-shaped metal shaft. This instrument is made by W. J. Ford & Co., of New York.

Passing now from the realm of dentistry to the throat, we find there an area of glandular structure, which, unlike the upper-air passages and the digestive tract, is not covered with ciliated epithelium, and which on account of its position is not so well cleansed by the saliva—two facts which make it most susceptible to disease. This area is known as Waldeyer's ring, and cannot better be described than in the words of Waldeyer himself: "Its position is almost vertical, and beginning at the vault of the naso-pharynx with the pharyngeal or Luschka's tonsil, it extends to the orifice of the Eustachial tubes, where we have a larger aggregate of follicles—the tubal tonsil. Turning downward along the posterior edge of the soft palate and around the posterior pillar, it reaches the faucial tonsil, and across the base of the tongue called the lingual tonsil," or the tonsil of the tongue.

All of these tonsils, especially the faucial, take on true hyperplasia, and are often congenital, although the greatest number are found between the ages of ten and twelve. They are due to rheumatic habit, eruptive diseases, diphtheria, syphilis and the strumous diathesis. The symptoms of this disease are so familiar that they need only passing mention. They are the open mouth, the expressionless face, the coated tongue, the noisy snoring and restless sleep, the defective smell, taste and voice resonance. Usually associated with these tonsils is the Luschka tonsil (adenoids of the vault), with the added symptoms of defective æration of the blood and of middle-ear trouble. There is no question as to the advisability of removing the enlarged tonsils, as the most satisfactory results have been obtained thereby. Also if left each faucial gland has twelve to thirteen lacunæ which become a receptacle for plugs of cholesteatoma that burrow down through the organ and form an incubator for the reception and culture of micrococci.

For a number of years I was at a loss to account for a sore throat with *no objective symptoms*. I used to ascribe the same to rheumatism or to cold; but within the past year or so I have discovered the source in the *unenlarged, diseased and often hidden tonsil*. In this the lacunæ are infected with the addition of some form of vegetable fungus emitting a foul odor.

In examining this condition it is well

First—To separate the pillars of the fauces, thus bringing the tonsils into view.

Second—To examine the lacunæ for cholesteatoma and mycosis.

Third—To mop the faucial area with dry cotton on a probe, which, when there is disease present, will emit a fetid odor, which to the patient is manifested as a bad taste.

The fungus causing this bad taste or odor is very rapid in its growth, and were it not for the food, which scrapes it away during deglutition, it would become very formidable. Even after the night's fasting it is often so abundant that there is little desire for food.

This growth also extends to the pharynx, and in the former is more persistent, due to the fact that it is not molested by the food. In both it forms a thin coating which is partially washed down from the secretions of the nose and can be perceptibly tasted. Often a patient will complain of no other symptom. In more aggravated cases a small, muco-purulent, sweetish, offensive wad will be dislodged in the morning, and in advanced cases erosions are often found in different parts of the vault of the pharynx. It enlarges also the fibrilla of the tongue; I have seen them five-eighths of an inch in length in a patient with extremely foul breath.

The fungus is also found as far forward as the upper molars, and has a close relation there to the tartar of the teeth, another point by way of proof that it is of dental origin; but it has the closest predilection for Waldeyer's ring.

In treating this condition, it is well to first instruct the patient to have all cavities filled and all tartar removed from the teeth, and the interdental spaces separated so that they can be easily cleansed. I then cauterize the tonsils and cleanse the naso and oro-pharynx, teeth and tongue, with alkali washes and with antiseptics, such as peroxide of hydrogen, ichthyol and thyptol-wyeth, being particular to make topical applications to the naso and oro-pharynx with 25 per cent solution of ichthyol, and where there are erosions to remove inspissated mucus. I instruct the patient to be vigilant in the care of the teeth, and how to mop out the fauces with some chlorine solution. As this fungus takes but a very short time to spread over a large surface, it requires the utmost painstaking to eradicate it, and in some cases where it is very chronic it can only be brought under control.

Out of a great number of cases with symptoms like those just described I have chosen one which I consider typical.

Case—Mr. J., aged thirty six, professional man, consulted me for catarrh of the pharynx. This condition had given him more or less trouble for years, and in the morning made him hawk and spit, troubled him very little during the day, except that just before meals there was a bad taste in his mouth. On inspection I noticed the absence of three molar teeth on one side and two on the other; considerable tartar was present on his molars, his tongue was slightly

coated, his tonsils hidden and pharynx covered with a veil of secretion of a slightly yellow transparent nature.

He gave a history of quinsy two years previous. His breath had the peculiar taint so common in this condition. Upon separating the pillars of the fauces I could at first detect no plug of cholesteatoma, but upon using the tampon of dry cotton a very pronounced odor was elicited. Concluding that the tonsil was diseased, with a small cautery I opened it and found within a cheesy mass. I adopted the treatment already described, with marked improvement to his general health. Occasionally I noticed in the treatment of this young man that the odor frequently returned to his breath, but by his own energies he could entirely control it.

In conclusion, I wish to call attention to the following points brought out in this paper:

First—That teeth should receive attention from infancy, in order that caries may not invite forty-two different kinds of micro-organisms.

Second—That the mouth is the primary cause of many throat troubles, and ought to receive treatment simultaneously with the throat.

Third—That there is a quality of mildly offensive breath, which arises from micro-organisms present in the mouth, throat, naso and oro-pharynx.

Fourth—That bad taste in the mouth, particularly before meals, suggests infection of the tonsils, naso and oro-pharynx.

Fifth—Diseased tonsils, *not necessarily enlarged* and often *hidden*, no longer act as a barrier to disease, but rather as a germ incubator, and the diseased outer surface ought to be removed.

Sixth—That the term rheumatic sore throat should be used with less freedom.

Seventh—That the vicious habit of a mother tasting her child's food before giving it to the child, should be preached against.

Eighth—For the same reason all instruments, drinking utensils, should be carefully cleansed before use.

Ninth—That the coating of the tongue, which is often local in origin, should be removed as systematically as the tartar from the teeth.

SOCIETY PROCEEDINGS.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

(Proceedings Continued from Page 232.)

Subglottic Growths; Report of Cases, with Exhibition of Improved Instruments.

DR. ROBERT C. MYLES, of New York, made this report. He said that Mackenzie's original idea was to push the tube of his forceps down instead of pulling the cutting blades up. It was almost impossible to pull and push at the same time in a spasmodic larynx, and hence he had had a tube forceps arranged somewhat after the manner of Grant's instrument. The beak could be adjusted in any direction. By pushing with the end of the finger, the cannula is forced down, thus causing the blades of the instrument to close. It only cuts on one side. In cases of benign growths it was especially desirable that no injury should be done to the healthy parts. He suggested the use of this instrument in cases of subglottic papilloma in children. One of the cases reported was that of a man who had consulted him in June, 1898. He stated that some of the growths had been removed on two previous occasions. On examination, he had found both ventricular bands, the cords, subglottic space covered with warty growths. He had had no difficulty in excising and removing them with the tube forceps above the cords, but several unsuccessful attempts had been made to remove the subglottic growths with Mackenzie's forceps. He had eventually succeeded by the use of the forceps just exhibited. Another case was that of a woman who had violent spasm of the larynx when treatment was attempted, even after the free application of a strong solution of cocaine. Finally, after the use of cocaine, morphine and potassium bromide, and with the aid of the same forceps, he had succeeded in removing the growths.

DISCUSSION.

Dr. Wendell C. Phillips said he welcomed any instrument which would favor the removal of these growths, as no instrument that he had used in the past had seemed to him altogether satisfactory. Up to this time Schroetter's tube forceps had seemed to him the best instrument.

Dr. Price-Brown, of Toronto, referred to one case in which he had used the galvano-cautery on a subglottic growth. The patient had, in addition, an aneurism of the aorta. The subglottic growth had produced almost complete stenosis. There was also paralysis of the vocal cord. The growth was large, extended much beyond the center, and was of a red color and had a broad base. He first used cocaine very freely, and then instructed the man to continue breathing so as not to contract the opposite vocal cord. He next passed the galvanic electrode onto the growth, singed it deeply, and took out the instruments. This was all that was done at the first sitting. To his surprise this did not produce edema. At intervals of one, two or three days the cauterization was repeated. The man was completely relieved, owing to the destruction of this fibroid growth, and had no return of his trouble up to the time of his death, four months later, from the aneurism. The most important point was to insist upon the patient's breathing constantly so as not to contract the cord during operation.

The History of a Case of Carcinoma of the Larynx—Dr. Joseph S. Gibb, Philadelphia.

This paper appears in this issue of The Laryngoscope in full, see page 242.

DISCUSSION.

Dr. George L. Richards, of Fall River, Mass., said that at the meeting of the society at Pittsburg two years ago he had raised the question of the difficulty of making the differential diagnosis between carcinoma and syphilis at times. The case that he had reported at that time had illustrated this difficulty. The man had improved under the use of large doses of iodide of potassium. The fragments removed had been too small for a satisfactory microscopical examination. The patient's life had been prolonged by the tracheotomy. After death the larynx had shown a most extensive involvement by a slowly extending almost dermoid carcinoma. This explained the difficulty of making the diagnosis. Total extirpation had not been attempted because of the involvement of the esophagus. It seemed to him that the operation was not to be thought of unless one could be reasonably sure that the area of carcinomatous tissue was comparatively small, and that the operation was done sufficiently early. If one could not be sure on these points he thought it preferable to do a tracheotomy and make the patient comfortable for the remainder of his days.

Dr. E. L. Van Sant, of Philadelphia, said that he had seen the case reported by Dr. Gibb, and could confirm all that had been said by him concerning it.

Dr. Arthur G. Root, of Albany, thanked the author for his candor in presenting this paper. The few isolated cases reported seemed to show that total extirpation of the larynx could be done and the patient still survive, but a careful review of the literature seems to warrant one in doing a tracheotomy and allowing the patient to get along as comfortably as he could. Where the larynx was put at rest in this manner, the malignant process quieted down, and life was probably as much prolonged as by any other method. There was reason to doubt whether the infection had arisen in the manner suggested. He thought it would have been much better to keep the patient on rectal feeding instead of allowing him to take any fluid by mouth. Personally, he had much faith in washing out the rectum and using large saline injections. In this way a patient could get along very well for several days with absolutely no nourishment by the mouth.

Dr. Wendell C. Phillips said that from his own experience and observation he felt sure that patients would live longer if nothing more than a tracheotomy were done in the advanced cases. He referred to a case (which had been published) in which there was a small growth occupying one-third of the vocal cord. He had thought it to be a simple papilloma, but following his invariable rule to have all growths examined microscopically, the pathologist had reported it to be a carcinoma. At the time of operation there had been no glandular enlargement, so that it was one of the few cases coming to the laryngologist in the primary stage. The man had nearly died of septic pneumonia in spite of careful nursing. He had eventually recovered from the operation and had now survived it a little over three years, with no sign of recurrence. Advanced cases of malignant growths of the larynx should be left alone in the present state of our operative technique. If only tracheotomy were done the patients rarely suffered.

Dr. Norval H. Pierce, of Chicago, said that he had had three cases of carcinoma of the larynx. All had been operated by extirpation of the larynx; all had died within nine days. One important lesson to be learned from the paper was that positive reliance could not always be placed on microscopical examination of parts removed from the surface of growths. For the removal of deeper portions Schroetter had devised a special instrument. He knew of a case of carcinoma occurring in the practice of a colleague, originating on the vocal cord, which had been removed by laryngo-fissure. The region around the carcinoma had been excised. This occurred over a year ago, and the patient was known to have been alive three months ago, with no recurrence. Most of these patients died of

septic pneumonia; the next most frequent cause of death was general sepsis. This is not surprising when it is remembered that the mouth cavity, or the lower portion of the pharynx, was necessarily opened and the infectious secretions from the mouth could not be kept from the wound. The tugging on the trachea was remediable by an improved technique. The cause of the tugging was obscure; it might be due to the weight of the lungs. The technique of laryngo-fissure and extirpation of the larynx is improving, and the mortality diminishing, so that one should not speak too sweepingly concerning the non-advisability of operating.

Dr. R. C. Myles said that he had studied with renewed interest the subject of extirpation in laryngeal operations for many years. The statistics were certainly not very flattering. It should be remembered that life was not worth much to a person afflicted with a malignant tumor of the larynx. In the case he presented before the American Medical Association in Philadelphia, the result had been rather disappointing. When seen a year or more after operation he had been in excellent shape. After a time he had developed vomiting, gastric distress and other evidence of a malignant growth of the pylorus, and had eventually wasted away and died. He believed if the operation on the larynx had been done a few months earlier, this man would have been permanently cured. He would protest unreservedly against these late operations.

Dr. Lewis C. Kline, of Indianapolis, Ind., said that he had been interested in Dr. Myles' case, and was glad to hear the ultimate result. At that time the speaker said he had taken the ground that if he had been the patient he would have preferred to be let alone. He could recall six cases of carcinoma of the larynx. On one occasion a physician had nearly suffocated in his office. He was taken to the hospital and a tracheotomy performed within a few hours. This was intended as an operation preliminary to opening the larynx, but nothing further was done. The patient returned to his home and finally died. In the other cases he had advised against operation, and he believed this was the best plan in such advanced cases.

Dr. Otto Joachim, of New Orleans, said that it was only too true that laryngologists rarely saw the early cases, but he had had an opportunity of seeing such a case in the person of a colleague. There had been no difficulty in this instance in making the diagnosis. The patient had, on his advice, been operated upon, and had made an excellent recovery. The disease had never recurred in this locality, but he had died about two years later from metastasis.

Dr. Gibb, in closing, said that he was sorry to see American surgeons so pessimistic when our German brethren were so enthusiastic

about the operation. He himself did not feel quite so enthusiastic as formerly. Sendziæ had collected 108 cases of total extirpation. In twenty-four the result was perfect; the shortest period without recurrence being three years, and the longest eight years. There were eleven cases of partially good results, *i. e.*, those in which a sufficient time had not elapsed to eliminate the possibility of recurrence. It should be stated, however, that there was a mortality of 72.2%.

He prefers laryngectomy because tracheotomy offers only a brief respite—the disease goes on—laryngectomy to be sure takes desperate chances, but gives the patient a possibility of complete cure; if unsuccessful, terminates the case quickly.

Suprarenal Extract in the Treatment of Nasal Hydrorrhea.

Dr. Bernard Berens, of Philadelphia, Pa., reported this case. Locally the sensitive area on the left middle turbinate had been cauterized and the parts sprayed with benzoinol and iodine. A four per cent solution of cocaine was given for the patient to use at night, or when the flow was more profuse. On January 9th a fresh solution of suprarenal extract was applied with cotton and allowed to remain ten minutes, and the local and general treatment was discontinued, five-grain tablets of the extract being ordered instead to be taken internally at intervals of three hours. After the third dose the discharge had ceased entirely. The flow stopped in a few days, and the extract was discontinued. The flow having returned in about three weeks, the use of the remedy was resumed, with the result that the discharge ceased, and has not returned since that time. It was possible that the remedy acted on the vaso-motor centers in the medulla. The author took the view advocated by Bosworth, that nasal hydrorrhea is the result of a neurosis of the fifth nerve. The frequent absence of albumin and sugar in the fluid discharged in the cases of hydrorrhea was one point in favor of its not being cerebro-spinal fluid; another was the enormous quantity of fluid voided. Moreover, there was no anatomical ground for the establishment of a flow between the sub-arachnoid space and the nasal chambers.

DISCUSSION.

Dr. C. P. Linhart, of Columbus, O., said he was reminded of a case seen in a young man. This person had used about one dozen handkerchiefs daily for three months previously, beginning with a severe cold and growing slowly worse. After trying various local applications without benefit, he had made use of a spray of Dobell's solution with a drachm of the suprarenal extract to the ounce. Within three days the discharge had been reduced to such an extent

that only two or three handkerchiefs were used daily. There seemed to be more fluid discharged from the side on which the turbinal was the more swollen. After four or five weeks of this treatment the discharge had ceased. It was expected that it would return during the winter, and it had done so, but had been promptly checked by the same application.

Dr. Sargent F. Snow, of Syracuse, said that he had seen a few of these cases, and they had recovered before the use of the suprarenal extract. He was in accord with the author in his argument that this discharge was not cerebro-spinal fluid. He had no routine treatment for these cases, treating each one according to the special local conditions found. He had had probably ten cases of well-marked hydrorrhea, four very profuse, and they had all recovered by attention to the nasal and ethmoidal drainage.

Dr. M. D. Lederman, of New York, said that in the recent literature on this subject he had found that the character of the discharge had been described more particularly with reference to its action upon the linen handkerchief and the presence of a "reducing" substance.

Dr. Wendell C. Phillips said that he was not altogether clear as to just what was meant by nasal hydrorrhea, but he had had a case which might come under that head. A young society woman had sought his advice because of a troublesome watery nasal discharge. Examination showed all of the tissues waterlogged. He had made the diagnosis of abscess of the septum, and had incised the latter, but no pus had been evacuated—only fluid. Moreover, this treatment had done no good whatever. There was little in her general condition to excite suspicion except the tendency to gout. Finally, in desperation, he had instructed her to use a powder blower containing suprarenal extract. This was used at night and gave prompt relief. After a few days of this treatment she recovered. This method of using the extract seemed to him the most efficient except in those individuals in whom the powder is irritating.

Dr. Lederman said regarding the irritation produced by the powdered suprarenal extract, that he had induced, in a medical friend, by this application, a most profuse and irritating nasal discharge, which had lasted for forty-eight hours, and had been associated with a temperature of 101° F. When administering it internally it should be combined with some stimulant to avoid cardiac depression.

Dr. Myles said he had been using the powder for about three years, and had met with only a few cases exhibiting this irritative action, probably not more than one in twenty or thirty. There were such persons, however, and the effect on them was certainly dread-

ful. He had often thought that the constitutional and local effect of this remedy might be influenced by the individual's suprarenal gland. He usually tested the individual case by applying powdered suprarenal extract with a swab to the turbinal. If it whitened the part quickly the result of such treatment would usually be found satisfactory.

Dr. Berens, in closing, expressed regret that the differential diagnosis had not been brought out more clearly. He had been astonished to learn from the discussion that nasal hydrorrhea is so frequent and that it is such a curable disease. A distinguishing point between a nasal hydrorrhea and a discharge of cerebro-spinal fluid was in the reduction of sugar. The digitalin had been administered in his cases merely to increase the general tone.

Some of the More Common Forms of Defective Speech, with Exhibition of Cases.

Dr. G. Hudson-Makuen, of Philadelphia, read this paper. He defined voice to be "a column of breath set in vibration by its own impact with the vocal bands and re-enforced by its diffusion through the various resonant chambers into the surrounding atmosphere." It was his belief that the persons who stammer do so for the most part because they have not an adequate column of breath properly controlled at the time they desire to speak, and that the trouble in the majority of these cases lies in the respiratory mechanism. The diaphragm is well known to be an important respiratory muscle, and the text-books put it down as an inspiratory muscle. He personally believed that for the purposes of speaking and singing the diaphragm is a purely expiratory muscle. He had endeavored to show that the diaphragm should always be contracted or in a state of tension when the column of air was being used for the formation of voice. He therefore taught his pupils to contract the diaphragm during the emission of vocalized breath.

The speaker here presented a young man who had been coming to his clinic for about two years. When first seen he had been unable to articulate so as to be understood by anyone. When seventeen months old he had suffered from marasmus and he was unable to walk for five years. When first seen at the clinic he was nineteen years old, and he could not speak a single intelligible word. The muscles of his mouth and face were at that time in a state of almost constant tremor. He had been taught to use the organs of articulation in the formation of the various sounds and to control the breath by the proper use of the respiratory muscles, with special emphasis placed upon the use of the diaphragm, as described above; and he was now able to speak quite distinctly, though slowly

and monotonously, and with some effort. He had been taught to use the syllabic method of articulation in order to properly train his muscles. In time he will be able to talk smoothly and easily.

Dr. Makuen said that he had treated children as young as six years. He exhibited three girls who were being trained. He stated that stammering is a disorder of both the muscles and the nerves, but by muscle training the nervous system would also be trained.

Dentigenous Cysts of the Superior Maxilla.

Dr. Frederick Cobb, of Boston, read this paper. He said that in such persons the upper jaw is distended and as hard as bone. The location of the swelling is usually at the side of the nose, and examination of the nostril sometimes shows a bulging of the outer wall of the vestibule outwards and upwards. Sometimes the sinus could be seen running upwards into the swelling. The usual symptoms were slow swelling of the face, without suffering except perhaps a slight pain about the roots of the teeth. On the sound side the transmission of light below the organ is better than on the other side. On inserting a cannula into the tumor a brownish fluid escapes, and if by means of a syringe fluid is injected it escapes around the trocar. After evacuation of the cyst, and its consequent collapse, a sharp bony prominence, representing the roof of the cyst, would become apparent. His own cases had contained no teeth. It was important to determine the condition of the teeth entering the cyst. The bony opening in the cyst should be packed until granulation had become well established. He thought these cysts started in an inflammatory process originating around the diseased teeth, and characterized by excessive secretion. Some of the cases had come to him with a diagnosis of antrum disease. The salient points in the treatment were evacuation of the cyst and careful dental treatment.

Cornu Cutaneum Auris.

Dr. John C. Lester, of Brooklyn, N. Y., read this paper. The case was reported because of the extreme rarity of horny excrescences of the skin. In this case the growth had been attached to the middle and outer portions of the pinna. He had failed to find in dermatological literature any reference to tumors of this nature attached to any portion of the external ear. Such growths were rarely found except on the face and on the penis. The growth in this case was single. They were more common in advanced age, and in males rather than in the opposite sex. The case reported was that of a man, fifty-eight years of age, who, about six months before coming

under observation, had noticed a small pimple on the external border of the left ear. There was no history of traumatism or of constitutional taint. Attached to the upper half of the left ear was a horny excrescence, a little over one and one-quarter inches in length and about one inch in width at its base. Its shape resembled that of a pyramid slightly twisted upon itself, with the apex toward the head. Near the base it was spongy. Almost the entire cartilaginous portion of the ear was practically ossified. The growth unexpectedly came away *en masse* with the hardened matrix of the plaster cast. The hemorrhage was so severe as to necessitate the use of ligatures and the immediate closure of the wound by several sutures. The attachment was cauterized with nitric acid. Recovery was uneventful. The points of interest were, the anatomical location and the history of severe freezing of the auricle, the age and sex of the patient, the severe hemorrhage following removal, the ossification of the auricle and the permanency of the recovery.

A Report of Three Cases of Ligation of the Internal Jugular for Septic Thrombosis Following Purulent Otitis Media—Recovery.

Dr. E. B. Dench, of New York, read this paper. He said that the majority of these cases terminate fatally unless relieved by the surgeon. In the past fifteen years the means of recognizing the condition had become better and the technique had also greatly improved. Three cases were reported.

Dr. Wilson said that the first operation of this character that he had assisted the operator had taken four hours and a half to do the operation. He had since that time done the operation himself in one hour and a half.

Dr. Dench replied that in the first case the operation had required between two and a quarter and two and a half hours; the second and third, one and three-quarter hours each.

Dr. Otto Joachim thought the excellent results achieved in the cases reported in the paper were largely owing to the early stage at which the operations had been done.

Dr. Dench was of the opinion that the secret of success was in making early diagnosis and resorting to immediate operation. The history of sinus thrombosis seemed to him about as characteristic as any other condition met with. There were the typical rise and fall of temperature. One should be able to make a positive diagnosis after watching a case for forty-eight hours.

(To be continued.)

THIRTEENTH INTERNATIONAL MEDICAL CONGRESS.

SECTION OF LARYNGOLOGY AND RHINOLOGY.

Summary of Proceedings—Sessions of August 3, 1900.

The Anatomo-Pathologic Diagnosis of Cancer of the Larynx—By B. FRÄNKEL (Berlin).

The microscopic examination of a removed portion of the tumor is of fundamental importance in the diagnosis of cancer. If the result of the examination is negative, a certain conclusion cannot be drawn; on the other hand, where the examination is positive, the diagnosis is certain and the treatment of the case indicated. The only difficulty lies in the fact that the portion removed is ordinarily too small for the purposes of microscopic examination. The specimen should be imbedded in paraffin and cut in serial sections, which should be stained after the method of Van Giesen or with picro-carmin.

The diagnosis is not established by finding epithelial cells in the preparations, although this is suspicious, but by finding collections of epithelial cells in places where normally they are not found. Where the epithelium of the surface penetrates the deeper structures, great circumspection must be exercised in making a diagnosis, in view of the fact that a number of pathologic processes, such as syphilis, may occasion an analogous epithelial hypergenesis. Irregular structure of the epithelium is a characteristic symptom of cancer.

Diagnosis of Laryngeal Cancer—By MORITZ SCHMIDT (Frankfort).

The symptoms of laryngeal cancer, hoarseness, stenosis, odor, etc., are not in themselves characteristic, but are found in many other diseases of the larynx. With the mirror it can be seen that laryngeal cancer takes its origin from different parts of the larynx.

It is to be distinguished, in the great majority of cases, from other tumors in that it retains the original character of a tumor during the whole course of the disease. Some exceptions are to be found in such cases where the disease lies deep in the tissues in the neighborhood of the perichondrium. In this form, a growth of true papillomata upon the surface of the mucous membrane is not infrequently observed. The origin of this form of laryngeal cancer induces a predisposition to perichondritis during its entire development, of the sort which causes the laryngeal picture to be masked.

Cancer of the ventricle of Morgagni often resembles internal perichondritis of the thyroid cartilage.

In two cases the cancer originated from the inferior portion of the posterior wall of the cricoid and showed its presence only by paralysis of the recurrent. One, reported by B. Fränkel, was bilateral, the other, which was observed by the writer, arose from the left side.

The diagnosis, which is sometimes very difficult, even for a practitioner of considerable experience, is to be made between this condition and tuberculosis (two personal cases are reported), syphilis and sarcoma. Inasmuch as the diagnosis of laryngeal cancer is sometimes uncertain, especially among those of limited experience, recourse must be had to other means to aid in the diagnosis, such as anamnesis, examination for traces of the disease, individual or hereditary, antisyphilitic treatment, and excision of a portion for microscopic examination.

CONCLUSIONS.

1. Cancer of the larynx presents almost always at the commencement and during the course of the disease the character of a tumor in different forms.

2. Cancer which arises from the deeper tissues of the larynx gives often origin to true papillomata of the surface of the mucous membrane, and often resembles perichondritis in the course of the disease.

3. Cancer of the ventricle of Morgagni presents very frequently the laryngoscopic picture of internal perichondritis.

4. In rare cases the cancer begins in the lower and posterior part of the cricoid and shows its presence only by a paralysis of the recurrent.

5. To exclude syphilis, it is only necessary to give daily doses of three grams of potassium iodide for two weeks.

6. A positive diagnosis can be made by microscopic examination of a piece of the growth. For this purpose the double curette, cutting from above downward, is preferable.

7. A positive result alone is decisive.

Psychic Salivation—By P. HELLAT (St. Petersburg).

Under the term psychic salivation the author describes an anomaly which has not been described up to the present. The histories of four patients given in detail demonstrate that the basis of this anomaly

represents spitting which is continual and without cause. The patients at first imagine that it is necessary for them to spit, but little by little saliva becomes repugnant to them to such a degree that they can no longer swallow it. The organism always makes efforts to replace the necessary quantity of saliva, whilst the patients take all the pains in the world to eliminate it by expectoration. This abnormal and excessive loss of the secretion, which is indispensable to the organism, and, perhaps, also the increased work of the salivary glands, produce a dryness of the mucous membrane of the mouth, an irritation of the pharynx and of the rhinopharynx, chronic catarrh of the larynx and middle ear. In addition to this there is observed an entire series of general phenomena on the side of the digestive organs and nervous system. Patients are obstipated and inclined to grave neurasthenia of (probably) specific nature, at times approaching mental aberration. The author believes that the matter depends chiefly upon a loss of certain elements of the saliva which are unknown to us, at the present time, but which are necessary to the organism. The duration of psychic salivation or aptyalia is unlimited.

So far as treatment is concerned all expectoration must be forbidden. Directly the saliva follows its natural channel a cure easily follows.

External Manipulations Applied to Difficult Intubations—By ESCAT (Toulouse).

Two entanglements may occur in the course of intubation in the child.

1. The entanglement of the tube in the intercricothyroid space, the axis of the tube making with that of the laryngo-tracheal canal an angle opened backwards.

2. The entanglement of the tube in the right ventricle or in the left ventricle of the larynx, as a result of a deviation from the median plane, either of the tube or of the laryngo-tracheal canal itself.

In order to combat against these two false paths, I have had recourse, in several instances, to external cervical movements, having for their object the modification of the position of the larynx and to restore the deviated axis of the laryngo-tracheal canal to that of a prolongation of the axis of the tube.

First maneuver.—The lower extremity of the tube being well engaged in the vestibule of the larynx and not being susceptible of going further in spite of all the changes of direction of the axis,

the left hand abandons its role of pharyngeal guide and is brought to bear upon the pharyngeal region the thumb, applied in the intercricothyroid space immediately above the cricoid eminence, then exerting a slight pressure whilst the right hand forcibly lowers the handle of the applicator. The object of this maneuver is to reduce as much as possible the angle opened backwards and forwards by the intersection of the axis of the tube and that of the laryngo-tracheal axis. It is therefore applicable to the false intercricothyroid path. If the maneuver succeeds the tube is engaged by means of the weight only of the applicator and the left index need only enter the pharynx to control its position.

Second maneuver.—If the above maneuver has not succeeded I have recourse to the following:

The tube being engaged in the laryngeal vestibule and the applicator held well in the median planes by the right hand, the left grasps the larynx between thumb and forefinger and gives it lateral movements which have for their object to modify the orientation of the laryngo-tracheal axis and to place it on a line with the prolongation of that of the tube.

This maneuver is directed against the false ventricular channel either to the right or left.

In four cases of difficult intubation the first maneuver succeeded but once.

The second, after no success with the first, succeeded twice.

In a fourth case the two failed.

My experience is not a large one, but there need be no surprise if there be a thought given to the rarity of really difficult intubations.

The two maneuvers are of a relatively easy execution; in addition they seem to me to be absolutely harmless. I therefore believe that there is reason to try them in all cases of difficult intubation.

Operative Treatment of Rhinoscleroma—By EMERIC DE NAVRÄIL (Buda-Pesth).

After having made known the peculiar geographical distribution of rhinoscleroma, the author takes up the question in regard to the treatment of this disease. He has had many cases, of which he publishes here but seven reports on patients.

The first case seen in 1885 was the first one in which an exact diagnosis was made in Hungary. This was done by means of clinical observation and histologic examination. He had tried all the treatments recommended, applications, injections, cauterizations, dilatations, etc.

But, based upon his experience and the resemblance of rhinoscleroma to malignant tumors, he arrived at the conclusion that the only efficient treatment is entire removal.

He removes all the diseased tissues, with incisions brought into the healthy parts. Wherever necessary he also makes plastic operations. In order to re-establish the bony skeleton of the nose he takes the anterior plate of the frontal bone. In operating upon rhinoscleroma of the larynx, after preliminary inferior tracheotomy, he performs laryngofission (named thus and performed by him in 1867) to remove the growth.

In those cases in which large portions of the mucous membrane must be removed, he recommends Thiersch's grafts to replace the mucosa, having practiced this method in several cases of papilloma of the larynx. If the neighboring glands are involved by the disease—as Rona and the author have had occasion to observe—they must also be removed. With this radical procedure he has had excellent results in all cases, having never seen any relapses, in spite of the fact that the oldest case dated back from 1895.

Photographs of patients, before and after operation, were presented to the congress.

Pathogeny and Treatment of Laryngeal Paresthesia—By RICARDO BOTEY (Barcelona).

This is the second paper which the author has published on this question. In 1894 the author read at the eleventh congress of Rome a communication, in which he demonstrated that these disturbances of peripheral innervation are almost always accompanied by hyperesthesia of the pharynx and of the larynx, less accentuated than the anesthesia of hysterics.

In addition, he also stated in this memoir that there occurred sufficiently frequently in these cases secretory troubles of the mucous membranes, troubles of a transitory nature and not well marked, disappearing after a meal and giving rise to a diminished secretion of the glands of the mucosa which patients interpret by a sensation of dryness at the bottom of the throat, the pharynx being really less moist than in the normal state.

The later experience of the author has led him to believe that this painful sensation of which patients complain is located principally at the epiglottis and arytenoids, despite the fact that this sensation is difficult to locate. Local anesthesia by means of cocaine *increases considerably* the pharyngo-laryngeal paresthesia, a pathognomic characteristic which differentiates it from all local organic or inflammatory causes which can give rise to these sensations.

These facts lead the author to the belief that paresthesia is a result of hyperesthesia and that this diminution of tactile sensibility of the pharyngo-laryngeal mucosa gives rise to special reflex inhibitory reactions in the central portions of the nervous system producing the illusion of an obstacle as a foreign body, obstructing the passage of air and saliva. In addition, there often exists paresis of the thyro and aryepiglottic muscles, for in those instances the epiglottis always appears upright, resting against the base of the tongue.

This incomplete anesthesia seems to be incompatible with a state of active congestion of the arytenoids and of the epiglottis; the color is normal or a little paler than ordinary. If the patient has an acute laryngitis or tonsilitis the paresthesia disappears.

The author cites two very instructive cases of this sort which incline him to the belief that there exists in paresthesia of the larynx a certain amount of relative local anemia which keeps up the morbid process, and that consequently this sensitive perception of the peripheral terminations of the nervous system could be improved and even cured by a hyperemia, by a more considerable afflux of blood over the nervous filaments of the mucosa.

The treatment is thus completely opposite to that which is generally received. Instead of bromides, vaso-dilators and tonics are to be given. Locally, irritating applications with thymolated glycerine and light touches of the epiglottis and arytenoids with the point of the galvano-cautery. By pursuing this course a considerable amelioration of the paresthesia is almost always obtained.

Nevertheless, there are cases in which bromides must be administered internally, the slightly irritating local treatment remaining the same.

The local irritation produces a hyperemia with transudation of serum which acts like a *stimulus* on the more or less blunted general sensibility of the mucous membrane, and it acquires about a normal *tone*, if we have not gone beyond the limits of a very moderate inflammation.

Treatment of Laryngeal Tuberculosis by Intra-Tracheal Injections—By Dr. Louis Vacher (Orleans).

Laryngeal tuberculosis requires a varied treatment, according to the more or less advanced period of the local lesions and the state of the lungs. Having arrived to the ulcerative period, it absolutely requires removal of the vegetating parts, curetting, cauterizations and the application of soothing topical applications, which

alone diminish the pain, make the persistent and hacking cough cease and the dyspnea, dysphagia and vomiting caused by it.

This long, difficult treatment necessitates a certain operative skill as well as perseverance on the part of the patient. There are three principal kinds of lesions observed—infiltrations, vegetations and ulcerations. These last are found about everywhere covered with more or less thickened vegetations. If they are seated in the laryngeal vestibule, the epiglottic folds on the vocal cords, or in the upper part of the trachea, they cause violent pains, a persistent cough, a laryngeal spasm, which ends in vomiting, which prevents the patient from nourishing himself.

It is against these that the principal exertions must be made. It is necessary to curette, to cauterize, to make applications with caustics and various topical remedies. But one part always escapes the contact of the remedy. After having tried a large number of formulas, I had recourse to ether as a vehicle. After spraying cocaine, I first tried intra-laryngeal applications of a saturated solution of iodoform in ether, with which I incorporated, later on, guaiacol, eucalyptol, menthol, etc. I then make intra-tracheal injections, which are generally well borne. The patient immediately experiences a great warmth in the entire thorax, almost no glottic spasm, two or three strong inspirations and quiet is re-established. The breath retains for several hours the odor of the medicine, the pains are lessened, taking food is easier, breathing more ample. Here is my formula: Iodoform, ether to saturation 100, guaiacol 5, eucalyptol 2, menthol 1. I inject progressively up to two cubic centimeters. Improvement is the result of the large quantity of active principles carried by the ether into the trachea and the whole respiratory tree, fortunately modified by the direct contact of the remedy. A larger number of cases and the remote results therein will inform us whether we do not have in this an effective treatment for tuberculosis, and it is for this reason that I have called attention to the advantage of ether as a vehicle to carry remedies directly into the trachea.

Remarks on the Treatment of Tracheal Stenosis—By PIENIAZEK.

These conditions are most frequently the result of scleroma, very rarely of syphilis; sometimes congenital.

A membrane may be seen obstructing the lumen of the trachea and but a small opening for respiration remains. In all the cases which I have seen, the opening was spanned by a bridge-like membrane.

In these cases I perform tracheotomy above the stenosis. Then, drawing the patient to the edge of the operating table, and with the head hanging down, I examine the patient with a tracheal speculum, tear away the membrane and curette; a tracheotomy tube is then introduced and retained for three days.

Laryngeal Stricture Treated by Electrolysis in a Patient, the Carrier of a Tracheal Cannula for Sixteen Years; Detubation—By M. BOULAY (Paris) and J. BOULAI (Rennes).

A young man, nineteen years old, tracheotomized at the age of three for a trouble which presented all the signs of a prolonged croup, had never until then been capable of having the tube withdrawn.

He presented a glottic and sub-glottic stricture, leaving but a narrow passage for air, and which neither attempts at rapid dilatation, nor efforts at slow dilatation, nor cauterizations with the galvano-cautery, nor trials at excision with cutting forceps had ever succeeded in modifying.

Repeated seances of intra-laryngeal electrolysis alone brought about, in a few months, a passage large enough to permit of the cannula being removed without any incident, and even with great benefit to the patient, whose general state had been greatly improved.

Electrolysis thus appears to be a valuable means to add to the list of the means of treating laryngeal strictures.

The indications and contra-indications to its use will be pointed out later.

Primary Tuberculosis of the Larynx—By Dr. SAMUEL BERNHEIM (Paris).

The author reports a large number of cases from which he concludes:

1. The larynx is sufficiently often, more so than is generally supposed, the seat of primary tuberculosis. This localization is demonstrated by the twenty-nine personal cases which we have observed and in which no other organ but the larynx was primarily attacked. Similar cases have been reported in great numbers by Gouguenheim, Moure, Hilary, Derdano, Heinze, etc.

2. Primary tubercular laryngitis is recognized by particular characteristics which are clearly distinguished from laryngitis of another nature and with which it cannot be confounded. At the very beginning of the affection, there can be seen at the arytenoids

small miliary granulations of a pathognomonic appearance. Later, when these granulations burst, they unite to form irregular ulcerations, often deep or punched out and invading almost the entire organ. The slow progress, the phenomena of loss of nutrition distinguish equally this variety of bacillary laryngitis from that which is clearly inflammatory.

3. This variety of miliary and infiltrating tuberculosis is susceptible of transformation into sclero-vegetating or papillomatous varieties, into a pseudo-polypous type. All these clinical forms may have been recognized by bacteriologic examination and by experiments on animals. A rapid and harmless method of diagnosis is the injection of tuberculine, producing a pathognomonic local reaction.

4. Primary lupus of the larynx is a variety of laryngeal tuberculosis of slow evolution.

5. It is of the greatest importance to establish a diagnosis early, if generalized tuberculosis is to be avoided.

6. Tubercular laryngitis is susceptible of being cured and is often cured. Outside of a moderate local antisepsis the chosen therapeusis is the hygieno-dietetic treatment.

Indications and Technique of Thyrotomy—By EUSTASIO URUNUELA (Madrid).

Thyrotomy or laryngo-fissure is of great value

1. For the extraction of a foreign body which cannot be dislodged in the natural way.

2. For the radical extirpation of large benign tumors of the larynx, in which intra-laryngeal removal has been unsuccessful.

3. To avoid the possibilities of extensive traumatism in the larynx.

4. Finally, the principal application of this operation is in the treatment of certain malignant tumors and also for resection of the larynx.

Then, too, we may consider thyrotomy necessary as an exploratory operation in determining the problems of intra-laryngeal surgery.

(To be continued.)

THIRTEENTH INTERNATIONAL MEDICAL CONGRESS.

SECTION OF OTOLOGY.

Summary of Proceedings—Sessions of August 3, 1900.

Eulogy on Dr. Charles Delstanche—By Prof. POLITZER.

Permit me, gentlemen, to speak to you of a man who has been taken but a few months since from our special practice—Charles Delstanche. Every country of Europe deplores the death of some distinguished otologist during the past fifty years with the exception of the United States, which has the pleasure of still retaining her's in their strength. After paying a deserved tribute to all the distinguished otologists of Europe who have paid the last tribute to Nature, the speaker spoke of Charles Delstanche. He was born in Brussels and descended of an old patrician family of that city. His father, Felix, after studying practical otology in Paris, established himself in Brussels and was the first specialist in diseases of the ear in Belgium.

His son Charles was born in Brussels, in 1840, and in 1863 obtained his degree. He devoted his attention especially to otology, more particularly from a practical standpoint. He published many papers in Belgium and foreign medical journals. These are too numerous to mention. His thesis on "Tinnitus Aurium" is a remarkable work on the etiology and symptomatology of these subjective sensations. But that which has chiefly contributed to his great reputation are his different methods of mechanical treatment of ear diseases, especially massage.

In 1887 he founded the first free clinic for the diseases of the ear and nose in Belgium and gave it his attention for twenty-five years.

Acumetry—A Plan for International Notation—By M. SCHIFFERS (Liege).

The attempts which have been made during several years by clinicians and physiologists to enrich science with a single method of acumetric notation have been numerous; but the problem is complex and of a more delicate solution than that which, for the oculist, consists in measuring visual acuity. This depends upon the fact, in the first place, that there exist lacunæ in our knowledge of the physiology of audition, as sound waves reach the perceptive

apparatus by the ærial and solid media at the same time; in short, because the ear is especially destined to analyse articulate language.

On the other hand, the problem has been complicated by the use of the methods employed to make known the seat of the lesion or of the functional trouble; this is an error which should be abandoned.

It must then be admitted that:

1. The watch and all sorts of acoumeters without gradation cannot serve for a fundamental minima notation; 2. The employment of the tuning-fork is still the best way of measuring the hearing of a subject. The optical method is a very real progress, probably susceptible of later improvements; it is, actually, the most exact means of making a minima acoumetric notation. It is applicable to all cases; 3. The method which consists in having recourse to the tuning-fork by noting the duration of perception has partisans. The tuning-fork employed must then be specified, and the result must be expressed by a fraction whose denominator represents the time of perception of the normal ear, and the numerator that of the ear examined; 4. The test of Weber retains all the value which has been credited to it up to this time; 5. The test of Rinné, if it be used, must be employed in the following manner: the handle of the tuning-fork should be presented before the otoscopic tube, in order that the comparison between the value of the ærial perception and the solid perception may be exact; 6. Examination by means of articulate language is indispensable, especially in children. The experiments of Wolf must be seriously heeded in its application. Inquiry should be prosecuted to find if there is not a means of giving the voice a uniform tone, which would endow the procedure with the precision it yet lacks.

Acumetry — A Plan for International Notation — By ARTHUR HARTMANN (Berlin).

It is proposed, in testing the hearing, first to make a diagnosis of the sort of disease which affects the organ of hearing; secondly, to determine the degree of hearing power in order to judge of the usual faculty and of the effect of treatment upon it.

The only instrument which we possess up to the present to make sound waves appreciable to the organ of hearing by solid and ærial media is the tuning-fork.

During the examination, the duration of perception must be determined, and, when the result is noted, the number of the vibrations of the tuning-fork which is employed must be noted.

The formula to be utilized is as follows: The first number indicates the number of vibrations of the tuning-fork, then follows a fraction whose denominator indicates the perception of the normal ear and the numerator that of the affected ear.

The determination of the perception of words must not be forgotten; for this purpose the whispered voice should be resorted to, and, in the notation, the words employed and the maximum distance at which they may still be heard should be indicated.

On the Finer Innervation of the Membrana Tympani—By M. JACQUES (Nancy).

The results which the author has obtained from his researches differ markedly from those of Kessel; it is true that the methods he has used also differ; as a matter of fact, he has utilized the selective action of methylene blue.

There exists upon the external surface of the *lamina propria* a fundamental plexus composed of the nerves which come to the membrane either at its superior pole or at its entire periphery, a plexus whose meshes are stretched according to the division of the vessels; that is to say, in a radial manner.

More superficial bundles are detached, and they run in the cutaneous-corium in all directions and terminate there in complex branching forms and of very great fineness comparable to peripheral sensory terminations.

The ganglionic cells which Kessel has observed have not been met with by the author any more than he has currently found myeline fibers. These characteristics give rise to an analogy between the cornea and the tympanum, which is nevertheless differentiated by the special orientation which the presence of vessels confers on the principal nervous branches.

The author presented drawings which support the views he advances.

Length of Sound Waves and Number of Vibrations Determined by Means of Kundt's Figures—By M. SCHWENDT (Basel).

If a resonating tube, such as that of Kundt, for instance, be taken and lycopodium powder introduced in it, this latter, under the influence of sound waves, takes on the form of a wavy line, the prominent parts corresponding to the bellies, the retracted one to the knots.

To determine the length of a wave, the entire line formed in the tube by the waves is measured, and is divided by the number of waves. To obtain the number of vibrations, the number which indicates the rapidity of formation of the sound is divided by the length of the wave.

These calculations are subject to a correction, which takes into account the temperature and diameter of the tubes, when mathematical precision is desired.

The author has thus determined the vibrations of the entire series from *ut*^{1} (C) to *fa*^{3} (F) of Koenig. His results and those which the latter author has determined by the method of treating agree quite markedly.

In the same manner, the results which he has obtained with the steel cylinders of Koenig correspond with those of the latter experimentor.

M. Schwendt has discovered that his method is also applicable to whistles, and has found that the length of the sound wave is equal to four times the length of the whistle, increased by a constant fraction of the diameter.

He has examined the whistle of Edelmann, a sort of locomotive whistle, and others in addition, and has established particularly that with the same length of whistle and by using weak and strong pressures, alternately, one may obtain at will the fundamental sound and a high harmonic the number of whose vibrations to that of the fundamental sound is as 3 is to 1.

On the Anatomy of Acute Otitis Media—By PANZER (Vienna).

The pathological lesions which he has observed are the following: The mucosa of the antrum is markedly thickened and infiltrated with round cells; the deepest portion is covered with an enlarged and ramified network of blood vessels and lymphatics. This mucosa sends fungus prolongations into the foramen opening of the antrum, which is partly occupied by an exudate; the epithelium, well preserved in places, has also disappeared in certain other ones.

The tympanic cavity is filled with exudation, the tympanic membrane is convex, and its blood and lymphatic vessels are greatly increased in number. The epithelium of this membrane, preserved at its lower portion, is little by little destroyed at its upper portion. At its external part it is raised, whilst the rest of the membrane is thickened from the infiltration of round cells, which, however, never penetrate into the insima of the tympanum; at the point where perforation takes place, an abundant exudate is found, as also in the space of Prussak.

The exudates which are composed of an agglomeration of mono- and polynuclear leucocytes occupy more particularly the postero-superior part than the lower portion of the tympanum, and finally the region in the radius of the *fenestra ovalis*. The mucosa of the tympanum is also thickened and presents folds; infiltrated with round cells, it is at times covered with epithelium; at other times it is deprived of it. The attic contains a few fungosities, but the bony portion is intact. The incus only presents a small diseased point produced by a loss of substance in which large cells may be seen, under a high power.

Upon the stapes are found voluminous granulations which completely surround it, and between its branches the exudation is found. The other organs of the tympanum share in the inflammatory process, and notably the tendons of the *tensor tympani*. The corda tympani is itself covered with granulations; as to the facial, it is penetrated by the exudate which is infiltrated in the bundles of its fibrous sheath, which explains the ease with which the nerve may be implicated, in the child, in inflammatory lesions of the tympanum.

Tricophytosis of the External Auditory Meatus—By L. Bar (Nice).

The external auditory meatus may be invaded by the majority of the dermatomycoses and there are parasitic otitis. The author reports a case of this sort in which the tricophyton of Malmsten was the cause.

Upon this occasion he has endeavored to gather some cases of tricophytic otitis which, on the other hand, are very rare, and describes their characteristics. They are acute, subacute, or chronic inflammations, characterized by a dermatitis which may be very severe, with a vascular and suppurating eruption, or one which is simply erythematous or squamous.

The prognosis is good in all acute cases, varying in regard to the hearing in cases of slow progress.

The diagnosis, which he establishes by microscopic examination alone, should be made in furunculous otitis, otomycosis, impetiginous and squamous eczemas, acnes, erythemas, syphilitic roseola and the syphilides.

Among the parasiticide remedies which may be advantageously employed bichloride solutions 1 to 1000 and naphtholated vaseline 1 to 10 appear the most appropriate.

Sixteen Cases of So-Called Mastoiditis of Bezold—By E. J. MOURE (Bordeaux).

The name of mastoiditis of Bezold is certainly improper in the sense that the lesion which Bezold described never exists alone. As a matter of fact, the author, in all the cases in which the mastoid was perforated or was at the stage of being so at the point, has always found lesions of bone necrosis at other points of the mastoid.

In making a detailed examination of the sixteen cases he reports one can easily see that the mastoid perforations of the point were accompanied sometimes by a perforation of the internal table, usually about the sinus, more rarely at the upper portion of the antrum or towards the bony canal, at other times and more exceptionally towards the outside. Even when there exists a purulent infiltration of the neck, the meninges are always bathed in pus and are fungus.

Accordingly, care should be given in the so-called mastoiditis of Bezold, not only to examine for lesions of the digastric groove, but also for other bony changes which have their seat in the mastoid cavity.

So far as treatment is concerned, the author advises the almost complete closing of the wound, leaving a simple drain of medium size; this method of procedure, which singularly hastens cure, has given him excellent results which are absolutely final. The cases which he reports attest to this, the more so as his statistics stop July, 1899; so that the patients whom he considered as cured at this time must certainly be so, as they have not presented any signs of relapse up to the present time.

Evolution of Non-Operated Cases of Mastoiditis—By MOLINIÉ (Marseilles).

If acute mastoiditis may be cured in a thorough manner, spontaneously or under the influence of medical treatment, it is only exceptionally so since the author has observed this but fourteen times in seventy-three of his cases.

Once only did spontaneous opening bring on a perfect cure of a simple mastoiditis. Once only did the spontaneous opening of the cervical abscess bring about the cure of a Bezold mastoiditis. Another time, a mastoiditis, after having fistulized itself, cured by skinning over of the tract, and once more, fistulization rendered plastic intervention necessary.

Finally, the fifty-five other cases of mastoiditis not operated and not followed by cures resulted in the following manner: Seven terminated in death, five resulted in cholesteatoma, eleven opened and fistulized themselves. And, finally thirty-two cases passed to a chronic condition and gave rise to the two following forms:

1. *Simple fungus antritis*, in which the lesion is localized to the antrum.

2. *Diffuse latent mastoiditis.* In a few patients an almost absolute calm exists, disturbed in an intermittent manner by sensations of weight and even of pain awakened by cold, overwork, and intercurrent diseases.

This trouble and others may persist for a long time barely marked, and they may even be misunderstood, but they may be the indexes of very grave lesions.

The author concludes that the existence of these lesions in patients considered as cured of their mastoiditis show what caution must be employed in the prognosis of mastoiditis abandoned to its own resources or treated by medical means.

(To be continued.)

BRITISH MEDICAL ASSOCIATION.*

Sixty-Eighth Annual Meeting, Ipswich, July 31, August 1-3, 1900.

SECTION OF LARYNGOLOGY AND OTOLOGY.

President's Address—SCANES SPICER, M.D. Again in 1900 we have a combined Section of Laryngology and Otology, in which arrangement I think the Council of the Association have acted wisely. Except when we meet in the largest centers, or on special occasions like international congresses, it is not easy to secure a sufficiently large attendance to make two sections profitable. Then, nearly all the present generation of specialists in throat, nose and ear diseases practice all divisions, and there can be no doubt that the field of work and the chief questions of interest are the same to us all. Further, it appears to me that the sections of the British Medical Association annual meeting are intended not only for specialists but for the much larger number of practitioners who feel attracted to our subjects, and that we shall more effectually secure the diffusion of knowledge and interest by the consideration of broad questions common to both branches rather than of minute and unsettled problems peculiar to either laryngology or otology, more appropriately dealt with at the special societies and larger congresses.

The rapidity with which the evolution of our specialties has taken place is startling, though if we attempt to realize the vast problems that arise in it, it is not to be wondered at. When we limited ourselves to rule-of-thumb treatment of disorders of the throat and ear, it is not surprising that we were relatively insignificant; but now we have found that special practice in the field of diseases of the upper-air passages has to deal with such problems as the proper growth and evolution of the skull, nose and accessory sinuses, jaws, palate, teeth, chest and spine, the bearing of nasal respiration on catarrhal ear processes and deafness, and the development of the orbit; the physiognomy and expression; and the normal evolution of the mental functions, as well as with the treatment of disease, it is not astonishing that interest and recognition are alike on quite a different scale and widespread.

The nose as the front door, main entrance hall, warming, moistening and filtering mechanism of the respiratory current must

* Reprint from *British Medical Journal.*

necessarily take a leading place in the physiology and pathology of the throat and ear, and it is well to remember that the physical conditions of the nasal chambers differ from those of any other part of the body. For here we have chambers whose walls form a rigid box, lined with a highly vascular and nervous membrane through which is forcibly drawn by the act of inspiration about seventeen times per minute during life a current of air, and as the rigid walls of these chambers cannot collapse as in the chest on a fall in the internal air pressure any diminution in air tension can only affect the soft membranous linings of these walls by favoring their distension with blood and lymph by the lessening of the normal pressure on their vascular walls. No doubt the controlling action of the vasomotor nervous system in healthy subjects often wards off for some time the tendency to arterial dilatation; but the suction action on the veins and lymphatics when intranasal air tension is materially lessened must ensue, and after a time, or in weakly subjects or when a dyscrasia is present (such as syphilis, gout or rheumatism) then the result of diminished air tension is further seen in persistent relaxation of membranes and vessels—conditions which imitate congestive, catarrhal and hypertrophic processes. Given, therefore, an obstruction to the passage of the inspiratory current through the nose, its presence will necessarily be followed by a fall of air tension behind the obstruction, and proportional to its degree and situation and the effect of breathing through such a partially stenosed nose, will be dry cupping of the nasal membranes, whereas the tendency on the pneumatic accessory sinuses will be to lower their air tension in the same way as the action of an air pump would do, and so lead to similar changes in their lining membranes with other subsequent results which cannot here be considered. Such is very briefly the line of reasoning which has led me to attribute to nasal stenosis, obstruction or insufficiency such a pre-eminent position as a factor in the etiology of catarrhal throat, nose and ear processes; and this view I find is borne out by clinical experience. Opinions still differ as to the degree of importance and influence nasal insufficiency has in this direction. Some only recognize a fairly complete obstruction, leading to a sensation of stuffiness or blockage, of which the patient complains; whereas others like myself regard as pathological any insufficiency of passage which renders full free nasal respiration by day and night, in all positions of the body, under ordinary circumstances, together with practically equal passage and air tension on both sides of the nose.

In my experience the results of such a minor degree of stenosis may not be at once apparent, but they are none the less real, and the effects may be very slow and insidious in their appearance. Such a degree of stenosis should be attended to not later than the first onset of marked symptoms well known to be the results of nasal obstruction, so as to arrest their further development. Many such cases breathe well through the nose during the day, and may be regarded as having then the physiological minimum of passage; but in change of position at night the horizontal position leads to such a redistribution of fluids in obedience to gravity in the nasal membrane that the passage is encroached on, and mouth breathing with its own special evils ensue.

Further, it would appear reasonable that a slightly obstructed nostril has a more deleterious effect as a cause of chronic catarrhal changes in the nose and ears behind the obstruction than a more completely blocked one, since in the former case there is, from the diminished air tension, a more constant dry cupping of the membrane, and consequently a more liberal blood supply than in the latter; for in such latter subjects mouth breathing is necessarily more frequently, if not exclusively, resorted to; and this habit, though attended with its own bad results on the pharyngeal, and laryngeal, and bronchial mucous membranes, does not so directly injure the membranes of the throat and ear.

Perhaps here I may be allowed to refer to a query which I have often heard raised: "Why, if nasal obstruction is a cause of these catarrhal changes, and the so often resultant deafness, are so many cases of polypus nasi with extreme obstruction not deaf?" To this I would reply that it does not follow that because there is nasal obstruction that the vasomotor nerve control may not be sufficiently strong in some cases to prevent the Eustachian and middle-ear catarrh which is usually secondary to obstruction, but I would rather advance the view that in most cases of large watery polypi the tumors themselves act as centers of counter-irritation, as far as Eustachian catarrh is concerned, by draining the areas to which they are attached, and acting as reservoirs of fluid which collects in the polypi, so that adjacent areas of the nose, naso-pharynx and ear do not become blood-logged and catarrhal. Further, this action is facilitated by the dependent position of polypi, their constricted attachments, and the action of gravity. In support of this view, I would adduce that my experience is that it is in those cases of large watery polypi extensively blocking the nose, yet with small bases of attachment, that aural catarrh and deafness

are less frequent, while on the other hand in those cases of diffuse muco-periostitis and polypoid degeneration (in which obstruction is less extreme), deafness is more common. But of course the influence of reflex aural impulses and also of conveyance of purulent infection will have to be borne in mind as well.

I have been led to conclude that most cases of nasal obstruction originate in an injury, and that when once an injury has even partially flattened the nose, or displaced the septum or cartilages, or initiated muco-periostitic changes in the spongy bones or accessory sinuses, though the results are often inconspicuous at the time, or even for years, it is in such antecedent injury that later nasal affections originate. The effects of such an injury is always to diminish the caliber of the respiratory channel, and that due proportion between the nasal channels and the needs of the organism with which we are born; hence arises the causative stenosis followed by hypertrophic catarrh. Hypertrophic catarrh causes increased obstruction, and so a vicious circle is created, the circumference of which is far-reaching and ever-widening. It is unnecessary to attempt to detail the ways in which the nose gets injured, but it appears desirable to mention how rickets predisposes to injury by the more numerous falls the rickety child has in learning to walk, especially if it commences too early. It is interesting to observe in this connection that nasal obstruction is so rare in quadrupeds, whereas I am not aware that any condition corresponding to adenoids has ever been described. I have been on the lookout for years, but have never seen anything like it. The reflection arises, are obstruction and adenoids among the penalties of our erect posture?

That the results of nasal obstruction are being gradually recognized is evidenced by the fact that it is now no uncommon thing to have cases of obstruction of the most diverse character sent for the adenoid operation in which the post-nasal adenoid hyperplasia element is absent or insignificant. This implies that the symptoms of obstruction as seen in one of its commonest forms are by some erroneously supposed to be due only to adenoids. It is by no means derogating from the claims of William Meyer to our gratitude if I suggest that in most cases of adenoids the post-nasal adenoid hyperplasia is only a part, and often a small part, in the pathological condition of the so-called adenoid child; that fractured and deflected bones and cartilages, turbinal enlargements, hypertrophied tonsils pushing up and growing up behind the soft palate, stunted nostrils, and even vaulted palate are often far more important features in the case at the time of examination than the post-nasal adenoid hyper-

plasia. The failure to recognize this or to act upon it is the cause of the unsatisfactory results which sometimes ensue if the practitioner has undertaken to bring about a cure by simply removing the adenoids. Hence the discredit and suspicion which has often surrounded the question of adenoid operations, and an explanation, at the same time, of the most common factor in a recurrence. I believe the truth to be this: In many children with nasal obstruction no formal adenoid operation need be done with an anesthetic—and its risks are not negligeable unless under special circumstances—if the other factors in the obstruction are attended to.

I have no hesitation in estimating that many hundreds of adenoid operations are done unnecessarily in this country every year when adenoids are not present, or if present are only an insignificant element in the obstruction, which depends mainly on other causes. The result of this is a complete absence of relief of the symptoms of obstruction, or only a slight and temporary improvement by the adenoid operation. The question we should put to ourselves is this: Is it the mere presence of the adenoids or the impeded breathing which leads to the arrested evolution evidenced by the so-called "adenoid physiognomy," the alar collapse, the stunted nostrils (persistence of infantile condition), the vaulted palate and crowded teeth, the "drawn" eyes, and the deformed chest? The answer can only be—the impeded respiration. This leads to imperfect use or disuse of the nasal channels, the structures adjacent have not the normal stimulus to growth excited by functional activity, and it is in the use or disuse of structures during growth and evolution that we shall find the master key to explain the normal or arrested evolution of the surrounding organs and structures. Hence child breathing is just as important as child feeding to bring about normal growth and with insufficient supply of air through stenosed nostrils, or improperly-prepared supply through the mouth come lessened vigor and weak breathing in addition to the developmental arrest.

It often happens that an operation for adenoids or nasal obstruction is regarded as the termination of the case, and that it should be unnecessary to take any more special trouble. This idea should be most strongly combated. The operation is only the first step towards the child getting back into the right road. The track being clear it has now to be used and developed. Well-considered developmental and respiratory exercises for the expansion of the chest, and the restoration of respiratory vigor, for the removal of articulation and resonance defects, hearing drill, correction of ocular defects, regulation of vaulted palate and crowded teeth, and numerous other defects

may require careful attention if the child is to catch up his more fortunate companion who has not been hampered by years of obstruction. The operation removes the obstruction, but he has to overcome, often with difficulty, many of the results of the previous deficiency.

In laying such stress on the influence of obstruction in producing hypertrophic or hyperplastic processes, it is not my wish to even apparently ignore other factors in the pathogeny of adenoids such as unresolved catarrhs, specific fevers, syphilis, struma, soil, climate, atmosphere, rickets, feeble breathing and low vitality, but it is my deliberate opinion that while restoring perfect nasal respiration will in many cases, if the child is put under ordinary favorable hygienic conditions, be followed by almost miraculous improvement; all the care and attention directed against the other factors will prove unsatisfactory or fruitless if the nasal obstruction is ignored. Not that all cases of obstruction by any means require a formal operation if taken early. But it is far better to operate too early or for minimal obstruction than too late or not at all; but in order to prevent a long-standing obstruction during growth from imprinting itself indelibly upon the frame and features we must always have in view not only the removal of adenoids, but ensure the complete functional efficiency of the nasal channels as a whole.

In conclusion, I would remind you that prevention is better than cure, and that if in our field of work, as in others, we have knowledge of causative factors of disease, we can in many cases eliminate and prevent them. Just as in general medicine and surgery the highest achievement is the prevention of disease and deformity, so in our special areas of work should we aim at developing the prophylactic aspect of our subject, and in diffusing the knowledge thereof broadcast. In this way, when a morbid process has been originated and detected, it can be corrected at an early stage. In this connection I firmly believe that the greater recognition of the influence of nasal obstruction in its earlier and slighter forms in producing those catarrhal changes which extend to the ear, is destined to play a great part in the future in the prevention and arrest of deafness and other disorders in an early stage. As the constant dropping of water wears away the stone, though imperceptibly, so does the constant action of fall of air tension in a stenosed nostril make its result evident sooner or later. Physical laws are no more suspended in our field of work than in any other. It behooves us to resolutely and firmly apply scientific facts, and to concern ourselves no less with the beginnings of disease and its prevention than with the highest developments of special technique.

A Discussion on the Indications for the Intranasal Treatment in Diseases of the Ear—P. McBride (Edinburgh).

The subject before us for discussion may be approached from two points of view, namely, (1) the conditions of the ear liable to be affected by nasal changes; (2) pathological conditions of the nose which may tend to involve the ear. It must be understood that under the term "nose" the naso-pharynx is also included. It almost follows that from adopting this method of dealing with our subject a certain amount of repetition must ensue. I shall, however, endeavor to keep it so far as possible within bounds. It is, I presume, generally admitted that many forms of middle-ear disease may, under certain circumstances, be markedly benefited by treatment directed to the naso-pharynx. Thus previously recurrent attacks of acute otitis media may be made to cease by the removal of adenoids. The same operation may also materially improve certain cases of chronic suppuration, although, as might be expected, the results will be much more uncertain and will depend upon many other factors. In the chronic non-suppurative middle-ear deafness of children, if the case has not gone too far and if there be no complication such as hereditary syphilis, the effects of removing adenoids are often little short of marvelous. In these cases we have a history of repeated colds, each leaving the patient more deaf than before. The drum membranes are usually much indrawn and in advanced cases thickened. Inflation is generally followed by marked improvement, but removal of adenoids may produce great benefit even where the use of Politzer's bag has failed even temporarily to restore the hearing.

So far, I think, we are all agreed, but when we come to chronic non-suppurative inflammation of the middle ear as it commonly occurs in adults the position is by no means so clear. As you are aware, grown-up and even middle-aged persons may suffer from adenoids just as children do; they may have the same train of symptoms, and, in exceptional cases, similar satisfactory results may be attained. There is, however, another, and unfortunately very common form of progressive deafness met with.

The patient comes with the oft-told tale of gradually-increasing hardness of hearing. In advanced cases he hears better in a noisy place, the tuning-fork is well perceived by bone conduction, and tinnitus is a common symptom. The drum membranes may be found somewhat indrawn or they may be normal in position. Again, sometimes there are patches of thickening, but together with these there may exist dark atrophic areas. Finally, with almost the same symptoms and history you may discover either quite normal membranes or there may be a delicate flamingo-red shade, most marked in the posterior part. Occasionally the only abnormality detectable is a slight irregularity in the outline of the malleus. In all these cases there may be a degree of Eustachian obstruction, but again the tubes may be freely pervious. From experience I should be inclined to say that the more marked the changes in the membrane the more likely are we to find the tube narrowed. Again, many of the patients state that they hear worse when they catch cold, and I think that you will most commonly find this connection with nasal catarrh in those who have evidence of thickening and indrawing of the drum membranes.

It is my practice to examine carefully the anterior and posterior nares of all my ear patients, and I have been rather struck by the fact that it is not very common to find what may be termed gross nasal lesions in many of them. At the same time, in the form of progressive middle-ear deafness we are considering, two types are undoubtedly distinguishable, namely:

1. Those in which the anterior and posterior nares are either normal or somewhat anemic, with a very sharp differentiation of parts; that is, the Eustachian tubes standing out with great prominence, but without a trace of swelling or congestion, the outline being sharply defined.

2. Those in which we have some congestion of the whole naso-pharyngeal tract, including the Eustachian orifices. We may also find some amount of hypertrophy of the turbinate, a degree of deviation of the septum or spurs; but, as a rule, these conditions are not sufficient to attract the patient's attention to the nose. Of course, I do not for a moment wish to contend that we do not also sometimes encounter very marked nasal conditions causing distinct obstruction —be they hypertrophic, septal or adenoid. I merely desire to suggest that they are not found frequently.

Another rather interesting point is, that while the normal or nearly normal membrane is usually associated with a normal or nearly normal naso-pharynx, the cases in which there is diffuse congestion of

the upper respiratory tract often exhibit evidences of indrawing, thickening and atrophy of the drumhead. Of course you are aware that progressive deafness of one type is now known to be commonly due to changes in the region of the stapes often associated with a lesion of the osseous capsule of the labyrinth, while the other is ascribed to chronic middle-ear catarrh. This, I think, is correct as far as it goes, but whether this chronic catarrhal form can often be cured by intranasal operation is another question. Obviously, if there be a gross lesion leading to nasal symptoms, operative treatment will be indicated on general principles, but from what I have seen of this class of cases—both in those who have come to me at first and those who had been previously treated by others—I am inclined to let this be the test. In other words, I feel disinclined to operate where no obvious nasal symptoms are experienced. In those instances in which the weight of evidence is in favor of ankylosis of the stapes, with or without implication of the labyrinth, it is important to remember that they may be made worse by fatigue, nervous shock, hemorrhage and the like. This is well instanced by the known effect of childbirth on many such cases. It is, therefore, a very open question whether we should not always think once and again before operating under this combination of circumstances, for every operation produces some degree of shock.

I would, therefore, contend (1) that the aurist is now in a position to separate the two classes of cases—to-wit, *(a)* the so-called sclerotic; *(b)* the catarrhal. (2) That in the former it is questionable whether operating on the nose can ever be of benefit, but it may do harm. (3) That in the latter it is better to operate on a gross nasal lesion which is causing nasal symptoms, and upon a naso-pharyngeal condition if it be present—for example, adenoids—for, as we shall see, these may involve the ear without causing other local symptoms.

Of course, I am aware that the sclerotic and catarrhal forms of middle-ear deafness are often mixed, but time does not permit of my going into this interesting point. Here is exactly where experience comes in, and I trust that in the subsequent discussion the various authorities present will add to our information. I have spoken so far from considerations based chiefly on the aural aspects of the subject—if, indeed, such subdivision be justified. Let us now turn to a review of the various changes in the nose and naso-pharynx which are usually believed to be causes of deafness.

Beginning with the conditions capable of diagnosis by anterior rhinoscopy, it must be a somewhat difficult matter for those who believe that nasal obstruction *per se* is capable of producing progres-

sive deafness to account for its rare occurrence in cases of nasal polypus. We all know how seldom such patients complain of gradually increasing hardness of hearing, although, of course, we often find them suffering from slight blocking of the Eustachian tubes. It may be argued that the obstruction has not lasted long enough, but this will hardly hold water, for not uncommonly the victims of nasal polypus allow their trouble to continue for years before endeavoring to have it removed. Again, how frequently do we meet with very marked hypertrophic nasal catarrh, and how frequently does it exist without any marked impairment of hearing. It is very much the same with stenosis of the nostrils due to the septum. It seems to me that if we admit that nasal obstruction may very frequently exist without involving the ear, it almost follows that, in persons who suffer from progressive catarrhal deafness, even if a more or less marked nasal obstruction be also present, we are not entitled to assume the relation of effect and cause between these two conditions. Here, however, the controversialist may ask: How, if we put the nasal factor out of count, are we to explain those cases in which the history distinctly points to repeated head colds as causes of deafness, and how are the cases where rational treatment directed to a nasal catarrh has exerted a beneficial effect upon hearing to be accounted for? I am quite willing to admit the difficulty, but I much question whether any really acceptable explanation is at hand. It appears to me that in certain persons there is a marked inclination to catarrh of the upper respiratory tract, and that in some cases there is a tendency to involve the middle ear while in others this organ escapes. As we are yet somewhat in the dark on this point, it will therefore be well in such instances to remedy any condition which is causing definite discomfort. At the same time I would deprecate the operative removal of small deviations and spurs which cause no symptoms appreciable to the patient.

Turning now to the naso-pharynx, let us consider what information may be derived from posterior rhinoscopy. As we all know, in certain cases of middle-ear catarrh we may find more or less marked diffuse congestion of the naso-pharynx. Obviously this may depend upon the previously suggested general catarrhal tendency, but it may also arise mechanically as a result of obstruction in the anterior nares. It appears to me that in certain doubtful cases the presence or absence of redness about the Eustachian orifices may be a useful indication as to whether or not an operation on the anterior nares be desirable. Thus, if a moderate degree of obstruction exists it is obvious that it may affect the ear either by acting as a focus of

irritation or by causing diminished air pressure in the postnasal space. In either case there will result congestion, and if this be absent I think we may assume that the nasal condition is not the cause of the ear symptoms. With regard to the presence of gross lesions in the naso-pharynx, to some extent the same difficulties encounter us which we have already discussed in considering the anterior nares. Of course, in slowly-increasing sessile tumors we meet with deafness, but I think that those who have had a large experience will agree with me that it is not of the same type as that which we are accustomed to call progressive chronic catarrh. Again, most of us have encountered instances of single pedunculated tumors, and in these deafness is rarely, if ever, in my experience, a pronounced symptom. I do not think that we are at all in a position to explain this fully, but a consideration of what can be observed in studying adenoids as a cause of deafness may throw a little light upon the matter.

I need not enter into the form of deafness which is so frequently met with in adenoid hypertrophy. You are all familiar with it and also know that in this case the relation of cause and effect is usually demonstrable because after the adenoids have been removed the deafness disappears. It is also well known that a very considerable amount of adenoid hypertrophy may exist without causing any impairment of hearing. The question here again arises: Can this apparent anomaly be explained? I am inclined to think that it can. Of course, where the naso-pharyngeal space is filled in its upper part we cannot usually localize the base of the mass with any attempt at exactness. It is different, however, when we meet with examples in which the hypertrophy is of smaller extent. In these cases we meet with two forms of rhinoscopic image. In one we see a mass of tissue occupying the vault of the naso-pharynx, but we can observe that a relatively clear space remains between its margins and the Eustachian orifices. When this state of matters exists, I have, as a rule, found that removal of the mass does not materially influence the ear if it be affected, and, conversely, that it is relatively seldom associated with ear trouble. In the other the adenoid tissue may be very small in amount, but the mirror shows it to reach right across from one Eustachian orifice to the other. Indeed, it almost looks as if the tubal openings were compressed. I have seen a good many examples in which the result of operation showed how a small amount of adenoid tissue so placed may affect the ear. Not uncommonly the patients complain of recurrent attacks of acute middle-ear inflammation, and so long as the adenoids remain these continue to recur

periodically, while after their removal they cease. In other persons chronic middle-ear catarrh is kept up, and this again is usually much benefited by operation. A consideration of these facts will naturally lead us to the conclusion that direct mechanical interference with the Eustachian orifices has a very marked effect in producing deafness, and to some extent probably the converse holds. In other words, where this mechanical effect is absent we often do not find deafness caused, even although there be a considerable amount of adenoid tissue in the center of the naso-pharynx. It is possible that the deafness resulting from pressure on the Eustachian tube may not depend only upon deficient ventilation of the tympanum. It must be remembered that the veins of the middle ear return the blood to a considerable extent by way of the pharynx,* and that there is a similar connection as to lymphatics.† It is therefore conceivable that interference with circulation may play an important part in certain cases of deafness from adenoids. In some instances the posterior extremities of the inferior turbinates become very much enlarged, and I can conceive that they may lead to deafness by interfering with the Eustachian tubes directly or indirectly, although I have not met with cases in which their removal has given anything approaching the results frequently obtained by means of operating on adenoids.

I have already occupied so much time that I shall not detain you by any reference to non-operative treatment of the nose, interesting and tempting as the subject is. If at this meeting we can formulate the indications for intranasal operation on a scientific basis, the section will not have met in vain.

E. Cresswell Baber (Brighton). It may be said, speaking generally, that diseases and abnormalities of the nose (including under this term the nasal cavities and the naso-pharynx) affect the ears chiefly in four ways:

(1) By interfering with the proper ventilation of the tympanic cavity, either from obstruction in the nasal cavities (producing exhaustion of air in the tympanum), from closure of the mouth of the Eustachian tube by secretion or swelling of its walls, or from actual blocking of the tube by a new growth or the pathological enlargement of a normal structure. Obstruction of the nasal cavities also renders the ears more liable to sudden injury from currents of air passing up into the naso-pharynx, such as occurs in violent expiratory efforts, as coughing or sneezing. (2) By catarrh or other inflammatory affections of the nose or naso-

* Gruber, *Lehrbuch der Ohrenheilkunde*, p. 95.
† *Ibid*, p. 96.

pharynx spreading along the Eustachian tube. (3) By the actual passage of pathogenic organisms, such as those of tubercle, diphtheria, etc., up the Eustachian tube. (4) By interference with the normal action of the tubal muscles, either from paresis or paralysis of the palatal muscles, or general thickening of the mucous membrane of that part. It behoves us obviously, in order to keep the ears in a healthy state, to prevent as far as possible the occurrence of any of these conditions. This is a very different thing from saying that when the ears are already affected we are always justified in remedying nasal defects with a view of improving the state of the ears, or, at least, preventing it from becoming worse.

As the subject is entirely practical the best plan will, I think, be to take the different diseases of the ears *seriatim* very briefly, stating my own views on the indications for intranasal treatment in order to elicit those of members present.

(1) External Ear: In diseases of the auricle and external auditory meatus there are, as far as I am aware, no indications for intranasal treatment. (2) Middle Ear: Acute inflammation of the middle ear, whether catarrhal or suppurative, requires, as a rule, no intranasal treatment during the attack, except careful cleansing of the nose with a saline solution, indeed any other would be harmful. Exceptions might, however, arise in which obstruction of the Eustachian tube might require immediate intranasal treatment on the lines to be laid down in cases of chronic middle-ear disease. Chronic affections of the middle ear may be divided into non-purulent and purulent. In non-purulent cases, simple means, which it is unnecessary to describe in detail, should be taken to relieve catarrh, and to remove any specific organisms from the nose and naso-pharynx.

In considering the question of operative treatment in the nasal cavities for obstruction produced by deflection, spurs, ridges, enlargement of the turbinated bodies, etc., it must be borne in mind that obstruction in the nasal cavities exerts a pernicious influence on the middle ear in three different ways—by producing exhaustion of the air from the tympanum as already mentioned, by maintaining catarrh of the naso-pharynx, and by the direct irritation of the Eustachian orifices or pressure upon them by means of hypertrophied posterior ends of the turbinated bodies, polypi, etc. To assist in deciding when an operation is indicated on account of the ears it is convenient to divide the cases of chronic non-purulent middle-ear disease into two classes (1) those in which inflation (either by Politzer's method or

the catheter, if necessary a post-nasal one such as I have described),‡ improves the hearing, (2) those in which repeated inflation has no effect. In the former class the nasal obstruction may usually be relieved with benefit to the hearing power; in the latter operation is not to be recommended for the sake of the ears, although it may be and often is required for other reasons. The most it could do would be to prevent the deafness from increasing. It may sometimes be desirable for this purpose, but this is a difficult point on which to obtain reliable data. Exceptions of course occur, but by following this general rule for some years past I have avoided the disappointment of operating on the nose for the sake of the ears without producing any distinct benefit to the latter.

It is astonishing, as we all know, to what an extent the nasal cavities may be obstructed and yet the impairment of hearing be very slight. In the treatment of the naso-pharynx the same general rule holds good as in the nasal cavities with regard to the removal of obstruction and relief of catarrh; the latter, however, in this instance forms the more prominent feature, and therefore deserves our especial attention. It is hardly necessary to describe the numerous methods of treating catarrh and obstruction of the naso-pharynx. * * * * * *

Paresis of the palatal muscles affecting the Eustachian tubes of course requires appropriate treatment with galvanism, etc. In chronic suppurative disease of the middle ear the indications for treatment of the nasal cavities and naso-pharynx are similar, but in these cases the nasal treatment occupies a place secondary to that of the ear itself through the meatus.

Personally I prefer if possible to arrest the purulent discharge from the middle ear before operating on the nose and naso-pharynx. (3) Internal ear: Diseases of the internal ear require intranasal treatment only as far as they are dependent on middle-ear lesions, and to them the previous remarks are applicable. I have found no benefit from intranasal treatment either to auditory vertigo or tinnitus, excepting when these depended on tympanic troubles.

In these few remarks, the point which I wish to emphasize is the importance, from an otological point of view, of ascertaining the effects, in chronic cases, of inflation of the tympanum before any nasal or naso-pharyngeal operations are undertaken; this, not only for the purpose of throwing light on the prognosis of the ear

‡ Further Remarks on the Self-retaining Palate Hook, including its Use in Post-nasal Catheterism, *British Medical Journal*, June 28, 1890.

trouble after operation, but also for deciding on the necessity for any operation at all.

DUNDAS GRANT (London). That inflammatory or other obstructive conditions in the nose have an injurious effect upon the middle ear isaccepted as a fact by all except a very few, among whom I am obliged to include at least one most able practitioner of laryngology and rhinology, who, while expressing himself as most desirous of being able to believe that nasal obstructions can affect the hearing power injuriously, is unable to do so because he cannot find any reason why they should have this effect.

As regards the causal relation between the affections of the nasal passages and disease of the middle ear, it is so constantly before the eyes of the practitioner of otology and rhinology as to seem hardly to call for restatement. Some investigations made by myself at the time of the meeting of the British Medical Association in Glasgow seemed sufficiently definite; a very large proportion of the patients affected with nasal obstruction were at the same time the subjects of catarrh of the middle ear, and inversely out of a number of cases of catarrh of the middle ear a large proportion were affected with nasal obstruction to a very definite degree; the exceptions are sufficiently small in number not to invalidate the rule. One who treats the two organs simultaneously is not often in a position to judge of the effect of nasal treatment alone, but a very striking instance has come before my notice in the case of a gentleman whose singing voice was impaired owing to a congestion of the pharynx and larynx associated with a deviation of the septum blocking up the left nostril. I proposed to him that he should allow me to remove the obstruction, and without further delay I did so; when he saw me again about a fortnight later he expressed his surprise and delight to find that the left ear, which had always been what he considered a deaf one, had improved immensely, and was now almost as good as the other. In this case the condition in the nose was as purely an obstruction as it was possible to find; such a case seems to be absolutely convincing.

As to the question of why a nasal obstruction should have this injurious effect, it has been pointed out that behind any obstruction in the nose there is during inspiration a condition of negative pressure or suction acting upon the liquids in the soft distensible tissues, thereby causing increase of turgescence, both in the posterior part of the nasal cavities, in the naso-pharynx, in the Eustachian tube and tympanum, leading at the same time to indrawing of the membrana tympani itself. It is not difficult to realize

how these conditions may be kept up by continuance of the presence of the nasal obstruction and how their removal may lead to an improvement in the condition of the ear. In well-marked cases, then, there seems to me to be no room for a diversity of opinion, and it will, I think, be admitted that a large number of cases—I do not say all—of catarrhal diseases of the middle ear are favorably influenced by the removal of nasal obstructions. In order to arrive at our proper limitations we must form some estimate as to whether in any given case the degree of nasal obstruction is such as to bring about the changes described in the middle ear. In the next place, how are we to recognize in any given case that the disturbance in the middle ear is of the nature described, and that its cause may be kept up by nasal obstruction? In regard to the first, there is no doubt some necessary proportion between the transverse section of the nasal channels and the amount of air to be drawn into the lungs with each inspiration, but in practice we may be guided by the sensation of the patient, the amount of the visible departure from the normal calibre, and the capacity of the patient for breathing with the mouth shut, so that in reality, if we are too much biased, we may make a very reasonable approach to accuracy in our determination as to whether nasal obstruction is or is not present. It is absurd to suppose that a slight degree of obstruction affecting one nostril can produce any considerable degree of negative pressure.

With regard to the forms of disease of the middle ear attributable to nasal obstruction, they are chiefly characterized by congestion and indrawing of the boundaries of the tympanum, and in especial the various forms of moist catarrh. From these we must carefully distinguish the typical cases of dry catarrh which constitute the opprobia of aural surgery; in these the essence of the disease is a thickening of the tissues and ossification of the tissues surrounding the footplate of the stapes in the fenestra ovalis, which is essentially of an osteo-arthritic nature, and, like chronic osteo-arthritis of other joints, almost inexplicable as regards its etiology. It is necessary to be able to identify this class of case, so that we may not imperil the reputation of oto-rhinology by promising results from the removal of nasal obstructions which, from the nature of things, cannot be attained. * * * * * * * *

The most typical cases are those of chronic Eustachian catarrh associated with adenoid vegetations in the naso-pharynx, and the indication admits of no dispute.

There is another class of cases altogether, in which the question of treating a nasal obstruction becomes a very important one.

In the majority of cases any obstruction of the nose sufficient to affect injuriously the organ of hearing produces at the same time other symptoms which, quite apart from the ear disease, indicate its removal, and when such indications are not present it is right to hesitate very seriously before carrying out the operation in the nose. Another serious consideration presents itself with operations in the nose, whether in the nature of cautery or cutting; though as a rule quite innocent, they are at times followed by suppurative inflammation in the middle ear, and nothing could be more distressing than for this to take place as the result of an operation intended for the cure of a non-suppurative affection of the middle ear. In the writer's opinion the great safeguard against the propagation of inflammation to the middle ear is the avoidance of any form of plugging after nasal operations; for this purpose it is advisable that after the operation the bleeding should be allowed to expend its violence before the patient gets beyond the reach of the surgeon. Again, in view of the possibility that the nasal mucus possesses some bactericidal properties, it is advisable that the smallest amount of mucous membrane possible should be removed compatible with the relief of the obstruction.

To resume: there is a causal association between nasal obstruction and some forms of disease of the middle ear, especially the moist catarrh; but not the typical sclerotic catarrh. In some cases of nerve deafness good results may follow the improvement in nerve tone produced by removal of nasal obstruction. In operations in the nose all precautions should be taken which diminish the possibility of the occurrence of suppurative inflammation of the middle ear. In doubtful cases nasal operations should be avoided, unless there are other indications apart from the affection of the middle ear.

Scanes Spicer (London) said there was in need of some standard of measurement of nasal obstruction. Was it the fact of nasal obstruction *per se*, or did the results depend upon the nature of the obstruction? Was the essential fact the reduction of pressure? Practically, it was important to know what they were to tell their patients. Under what circumstances could improvement in hearing be promised, or even arrest of progressive deafness as the result of intranasal operations? It was important to settle these points.

Hebert Tilley (London) said that nasal obstruction alone, however marked, could not be regarded as the factor of greatest importance in the causation of the great majority of cases of deafness. In the recorded cases of complete congenital occlusion of the choanæ

(nine cases in all) deafness was conspicuous by its absence. His own experience was that intranasal operations for the removal of obstruction in cases of so-called "dry catarrh" were almost invariably failures; he could not recall a single success as regarded hearing power, although the patient might feel great benefit otherwise from relief of the nasal obstruction. He had long since given up advising intranasal operations in such cases, and if pressed to operate was careful to explain that the chance of relief to deafness was very remote. On the other hand, in the moister form of aural catarrh which varied from time to time and were associated with moist sounds on auscultation, excellent results might often be obtained by the removal of nasal obstruction due to hypertrophic catarrh, polypi, septal spurs, deflections, etc.

Jobson Horne (London) pointed out the importance of age as a factor. In childhood the inferior meatus and Eustachian tube formed practically one continuous channel, and at the same time the naso-pharynx was small. Hence the danger of infection of the middle ear. With growth the naso-pharynx developed and an increased interval separated the posterior nares and Eustachian tubes, so that there was less danger of infection, and at the same time the effect of nasal obstruction of the ears was diminished. This, he thought, to some extent explained why certain forms of nasal obstruction, such as polypi, which were chiefly found in adults, were comparatively seldom associated with ear disease, in contrast with the frequency with which such disease was found in connection with adenoids, which was essentially a disease of early life. Change to a dry climate was preferable to intranasal treatment after removal of adenoids.

Watson Williams (Bristol) said that catarrh rather than nasal obstruction was generally the essential factor causing disease of the middle ear in cases where there was a direct connection between the nasal disease and the aural affection; and though it was true that a certain measure of nasal obstruction would be found in a large proportion of such cases, yet the nasal stenosis *per se* had no causal effect in either setting up or maintaining the catarrhal condition. He had frequently observed that the most obvious and rapid subsidence of Eustachian catarrh had followed the removal of post-nasal adenoids, which either from their relatively small size or from their position were certainly not directly causing nasal obstruction; and on the other hand, cases with most pronounced adenoid hypertrophy had not seldom been free from aural complications. Similarly marked nasal stenosis due to large pedunculated polypi was rarely productive of middle-ear disease, while the diffuse multiple polypi or polypoid

granulations associated with ethmoidal disease and consequent catarrh of the upper air passages were more disposed to aural complications. He was convinced that the effect of "negative pressure," both in the production of nasal catarrh and hypertrophy, and Eustachian catarrh and middle-ear disease, was largely, if not entirely, hypothetical, and that the presence of minor degrees of nasal obstruction were *per se* of little clinical importance from the aural standpoint.

Richard Lake (London) said the point was not what should constitute nasal obstruction, but what forms of ear disease could be relieved by intranasal measures. He believed that almost all cases of chronic dry catarrh were nasal in origin; the question was, what cases would benefit by an obstruction being removed, and what guides had we to aid us? They were, he thought, (1) the duration of air conduction; (2) the mobility of the malleus; (3) the effects of inflation. Short air conduction, immobility of the malleus, and no improvement after inflation left but little hope of aid from intranasal treatment. With reference to such treatment, he thought the most useful work was done in the posterior half of the nose, as in removal of enlarged ends of inferior turbinals, which acted as a direct irritant to the Eustachian tube. In cases of flaccidity of the membrana tympani it was usually found that the nose on that side was stenosed, and it was better to remove the obstruction before treating the ear directly. As to "negative pressure" in the naso-pharynx in cases of nasal obstruction, with all due deference to Dr. Dundas Grant, who had stated that they were all practically agreed on its presence, he wished to say that he was not. He considered that the effects of nasal obstruction were due to the mucus catarrh set up in the naso-pharynx, and that the indrawing of the membrane, etc., should be ascribed in great part to the attempts on the patient's part to clear the naso-pharynx by hawking, thereby constantly sucking the air out of the middle ear without subsequent inflation. Personally, he did not find the tuning-fork tests of any help in these cases.

Holbrook Curtis (New York) objected to the term "negative pressure" as unscientific. One might just as well describe vomiting as "negative swallowing." The general systemic improvement due to the relief of a nasal stenosis and consequent improvement in the quality of the blood had been rather lost sight of in the discussion. Improvement might be due to this rather than to the nasal operation affecting the pharyngeal air supply. His experience had been that quite a large ear practice had come to him as the direct result of intranasal

work without reference to the ear, the improvement in hearing following intranasal operations causing a natural evolution of otological work. This alone would be convincing to him. Sclerotic ear cases demanded less surgical work in the nose, and more instillations of vaseline, etc., in the Eustachian tube. He regretted that the bougie and electrolytic treatment of strictures of the Eustachian tube had not been discussed, for he considered it an important adjunct to treatment.

H. PEGLER (London) thought it was often difficult to draw a distinct line of demarkation between catarrhal and sclerotic cases of middle-ear deafness. Most of them must, he thought, have been agreeably surprised at times by improvement in hearing in cases which hadbeen operated upon for nasal obstruction only. He thought one could not promise improvement, or even arrest of progressive deafness.

SPICER said he thought many of the cases were mixed, and with such no doubt there was some difficulty. What about the cases, say, with obstruction much worse during a cold or at night? Personally, he would not promise improvement if the aural condition had existed over a year. In recent cases he advised nasal operation.

DR. MCBRIDE referred to Dr. Jobson Horne's remarks on the size of the naso-pharynx as a factor. That idea was not in accordance with his experience. With regard to adenoids, the distribution of the tissue was of great importance. A large central cushion on the vault might be quite harmless to the ears, while quite a small amount laterally might compress the tubes and cause deafness. He had frequently observed this and was quite certain of it. With regard to Dr. Holbrook Curtis' views, we must have chapter and verse, precise details of cases tested before and after operation; pious opinions were not sufficient.

CRESSWELL BABER agreed that the adenoid operation was often only the first step in treatment, and on the other hand no doubt cases were sometimes operated on unnecessarily. With regard to the measure of nasal obstruction, he had used Kayser's rhinometer, but it was not very satisfactory. The rule for inflation he suggested for doubtful cases. He would not operate with a view to prevention. If there was negative pressure during inspiration, there must be positive pressure during attempted expiration through the nose. The negative pressure theory was, he thought, rather unsubstantiated.

DUNDAS GRANT differed from Mr. Lake with regard to the tuning-fork. He thought it supplied very valuable data if carefully used. The bulging of the membrane referred to by Mr. Lake suggested the possibility of a perverted action of the tubal muscles causing air to enter the middle ear during the act of swallowing.

(To be continued.)

BOOK REVIEWS.

Pulmonary Tuberculosis: Its Modern Prophylaxis and the Treatment in Special Institutions and at Home.—Alvarenga Prize Essay of the College of Physicians of Philadelphia for the Year 1898, Revised and Enlarged. By S. A. KNOPF, M.D. (Paris and Bellevue, N. Y.), physician to the Lung Department of the New York Throat and Nose Hospital, etc. Descriptions and illustrations of the most important sanatoria of Europe, the United States and Canada. Pp. 343, cloth. P. Blakiston's Son & Co., publishers, Philadelphia. Price, $3.00.

Our sources of information concerning the sanatoria and resorts for the special treatment of tuberculosis have heretofore been so scattered that if this monograph had accomplished but the one purpose of gathering these valuable data into one volume, it would have been an acceptable contribution to this special literature. Not only has this been admirably done, but the actual merit of the work and the suggestion of the author has earned for it the Alvarenga prize for the year 1898.

In its present form this essay has been revised and enlarged to formidable proportions, and numerous data and personal experiments and sketches of the history of tuberculosis have been added. The most considerable addition to the original essay is the description and illustration of some of the most important sanitoria, special hospitals and homes for the exclusive treatment of consumptives. This volume presents the latest thoughts of the leading European and American hygienists and physicians on prophylaxis and special treatment of pulmonary tuberculosis.

Another feature which is indicative of the best value of this monograph is its practicability. A long experience of the author and his actual personal investigation of the numerous sanitoria and hospitals which he describes gives the book a stamp of originality and makes it a valuable reference volume to the general practitioner and specialist alike. M. A. G.

A Manual of Otology. By GORHAM BACON, A.M., M.D., Professor of Otology in Cornell University Medical College, New York. With an introductory chapter by CLARENCE J. BLAKE, M.D., Professor of Otology in the Harvard Medical School, Boston. In one handsome 12mo. volume of 422 pages, with 114 engravings and 3 colored plates. Cloth, $2.25, *net*. Lea Brothers & Co., Publishers, Philadelphia and New York.

The necessity of a second edition of this excellent volume bespeaks its popularity. In the revised edition some twenty-five pages of new matter have been added, in which more extended consideration has been given to the Schwartze-Stacke operation and to the use of normal saline solution in intravenus injections. Many new illustrations have been added, and among the more striking additions may be mentioned a plate containing nine colored figures of the drum membrane in health and disease, and another showing the pneumatic cells and tympanic cavity.

In our previous review we have commended this volume to student, practitioner and specialist alike, and desire to again endorse it as one of the best manuals of otology published in America. M. A. G.

Transactions of the Sixth International Otological Congress, London, 1899. Edited by E. CRESSWELL BABER, Honorary Secretary-General, London. The Southern Publishing Co., 62 Fleet Street. 1900.

Hardly twelve months have elapsed since the otologists of the world met on the banks of the Thames, and the complete volume of the Transactions is now in their hands. As many of the papers had to be edited and set up in type in a foreign tongue, and as considerable delay was entailed through the adoption of the admirable plan of submitting them to their authors, we must confess that these transactions have been put through the press with a promptitude which will compare favorably with similar work at many other international gatherings. Mr. Cresswell Baber has added to the indebtedness we already owed him for his management of last year's meeting.

The volume not only contains all the papers read and the discussions held on them, but is also completed by a number of valuable contributions which were presented but could be accepted for publication only. A satisfactory index, both of subjects and authors, completes the book.

We do not pretend to have read through the volume, being already acquainted with most of the contributions, but from having dipped into it freely we are struck with the careful way in which the proofs have been read—a weary and thankless task carried out by Dr. A. J. Hutchison—and the consequent absence of mistakes in the spelling of the foreign contributions.

To those who were not members of the London Congress we can warmly commend this volume—a few copies of which are on sale at a moderate price—as a perfect storehouse of the modern views of the masters of otology.

STCLAIR THOMSON.

Manuale di Terapia E Medicina Operatoria dell'Orecchio. (Manual of Treatment and Operations on the Ear). By Professor GHERARDO FERRERI, teacher in the Oto-Laryngological Clinic of the Royal University of Rome. Roma: Società Editrice Dante Alighieri. Price, 7 lire.

This is a practical guide to the treatment of the diseases of the ear. It is not concerned with details either as to the methods of examination or the conditions which may be met with. These, indeed, are much better learned by attending an otological clinic. The technique required for examining the ear satisfactorily is not difficult to acquire, and to those who have mastered it the handbook under consideration will prove most useful. It has done for diseases of the ear what Lermoyez has already done for nasal affections by his work entitled "*Thérapeutique des Maladies des Fosses Nasales.*" Our only regret is that Italian is not a better known language, for then this excellent manual by our Roman collaborator would secure the wider audience which it merits.

STCLAIR THOMSON.

American Year Book of Medicine and Surgery, 1900 (Surgery). Edited by GEO. M. GOULD, M.D., with the co-operation of prominent American and foreign authors. Imperial octavo, 560 pages; cloth, $3.00 net; half morocco, $3.75. W. B. Saunders, Publisher, Philadelphia. 1900.

In the surgery volume of the 1900 "American Year Book of Medicine and Surgery" are a series of chapters on otology, rhinology and laryngology which may be of special interest to our readers.

The section on otology, edited by C. H. Burnett, M.D., of Philadelphia, contains a brief record of recent activity in this field of medicine and references to reports of interesting cases during the past season. It may be worthy of remark that the author of this section fails to refer to a single one of the many original communications on otology published in THE LARYNGOSCOPE, and as many of the most important American papers in this field have been published exclusively in this journal, this digest of otology must be considered far from complete.

The chapter on diseases of the nose and throat, as edited by E. Fletcher Ingalls, M.D., and H. G. Ohls, M.D., of Chicago, is a very succinct and interesting report of recent laryngological progress. An additional feature of value in the preparation of this chapter is the introduction of a series of interesting illustrations of important cases and new instruments. It is the best short report of progress in laryngology which has as yet come to our notice. M. A. G.

Progressive Medicine, a quarterly digest of advances, discoveries and improvements in the medical and surgical sciences, edited by HOBART AMORY HARE, M.D., assisted by CHAS. ADAMS HOLDER, M.D., with a staff of collaborators. Volume iii, September, 1900, octavo, cloth, 408 pages; price, $2.00. Lea Bros., publishers, Philadelphia.

In the section on diseases of the thorax and its viscera there are several chapters which contain points of special interest to our readers and which will be reviewed in greater detail in our abstract department.

Glaucoma: Its Symptoms, Varieties, Pathology and Treatment. ALEX. W. STIRLING, M.D., C.M. (Edin.); D. P. H. (Lond). Atlanta, Ga. Jones H. Parker, publisher, St. Louis.

This work gives a most thorough and complete summary of practically all that is known of glaucoma (up to the time of its publication) and is a most valuable reference volume to every ophthalmologist's library. The chapter on the condition of the vortex veins and choroid shows especial study and research. M. W.